LINKING MELBOURNE AUTHORITY

WESTLINK PROJECT PROPOSAL

1. DESCRIPTION OF THE DECLARED PROJECT 2
1.1 Particulars of the proponent 2
1.2 Title, purpose and objectives 2
1.3 WestLink - Strategic context and project need 4
1.4 Project components 6
1.5 Ancillary of subsidiary activities 6
1.6 Proposed project schedule 6
1.7 Project delivery approach 7
2. PROJECT DESIGN 8
2.1 Outline description of works 8
2.2 Design parameters 8
2.3 Environmental performance parameters 9
3. PROJECT ALTERNATIVES 10
4. PROJECT AREA 12
5. Description of the existing environment 13
5.1 Soil and vegetation characteristics 13
5.2 Outstanding natural features 13
5.3 Gradient 13
5.4 Waterways 13
5.5 Flora and fauna 15
5.6 Land contamination 20
5.7 Social and Community 22
5.8 Aboriginal heritage 23
5.9 European heritage 24
5.10 Commercial and business 26
5.11 Land use and planning 27
6. POTENTIAL IMPACTS OF THE DECLARED PROJECT ON THE ENVIRONMENT 29
7. APPLICABLE APPROVALS 47
8. OUTLINE OF FURTHER STUDIES 53
9. COMMUNICATIONS AND STAKEHOLDER ENGAGEMENT 57
9.1 Outline of Consultation 57
9.2 Target Audiences 59
9.3 Supporting Research 59
9.4 Early Consultation Overview 60

List of Attachments

Attachment 1 – WestLink Shortlisted Options
Attachment 2 – Important Ecological Features
Attachment 3 – Land Contamination and Water Opportunities and Constraints Map
Attachment 4 – Land Use Zones and Overlays
Attachment 5 – Typical Freeway Cross Section
Attachment 6 – Report for WestLink – Preliminary Ecological Assessment
Attachment 7 – WestLink – Draft European Cultural Heritage – Desktop Review of Statutory and Non-Statutory Listings

PREFACE

WestLink involves the construction of a new freeway standard road connecting east of the Maribyrnong River in West Melbourne and linking with the Western Ring Road in Sunshine West.

The project will potentially occur in two stages. The first stage is likely to involve construction of a road tunnel under Footscray between West Melbourne and West Footscray in the vicinity of Geelong and Sunshine Roads. This stage aims to reduce the over-reliance on the West Gate Bridge and M1 corridor and to improve freight access to the Port of Melbourne. It may also involve upgrades to Sunshine Road, Dempster Street and Paramount Road. The second stage would involve a surface freeway connection from the tunnel portal in West Footscray to the Western Ring Road in Sunshine West to complete the new road link.

WestLink is a medium term priority project in Victoria's Project Prioritisation Submission to Infrastructure Australia (2009). The timing, delivery and funding for WestLink are subject to future decisions by the Victorian Government. Linking Melbourne Authority is the Responsible Authority for planning and construction of WestLink.

WestLink has now been declared as a major transport project under the *Major Transport Project Facilitation Act 2009* (MTPF Act). This Project Proposal has been prepared in accordance with the Act to inform the Minister for Planning's decisions on the required assessment process (either Comprehensive Impact Statement or Impact Management Plan) and the nature and extent of investigations to be undertaken for the project.

1. DESCRIPTION OF THE DECLARED PROJECT

1.1 Particulars of the proponent

Name of proponent:	Southern and Eastern Integrated Transport Authority (SEITA) trading as Linking Melbourne Authority (LMA)
Authorised person for proponent:	Ken Mathers
Position:	Chief Executive Linking Melbourne Authority
Postal Address:	Building 1, Level 1 Brandon Business Park 540 Springvale Road Glen Waverly 3150
Email address:	Ken.Mathers@linkingmelbourne.vic.gov.au
Phone number:	03 8562 6800
Facsimile number:	03 8562 6899

1.2 Title, purpose and objectives

WestLink involves the construction of a new freeway standard road connecting east of the Maribyrnong River in West Melbourne and linking with the Western Ring Road in Sunshine West.

The project would cover a distance of approximately 10 kilometres and traverses three municipalities: the cities of Melbourne, Maribyrnong and Brimbank.

The eastern most extent of the project area is West Melbourne to the north of the Port of Melbourne, east of the Maribyrnong River. The eastern tunnel portal would be located in the general area between Dynon Road and Footscray Road.

The western end of the tunnel would provide for a portal in West Footscray in the vicinity of Sunshine Road and Geelong Road. A freeway standard road would connect this portal and the Western Ring Road in Sunshine West.

WestLink would provide network capacity for the critical east-west corridor by serving as an alternative to the West Gate Freeway. The tunnel under Footscray would assist in improving the amenity of the inner western suburbs through a reduction in truck traffic in these areas whilst also supporting the development of Footscray as a Central Activity District. Removal of truck traffic from suburban roads together with enhanced access to the Port of Melbourne will improve freight efficiency, reduce congestion related costs and allow for the predicted growth in the freight task at the Port of Melbourne.

The transport objectives for WestLink are:

1. To respond to increased transport demand due to future population growth in the west as set out in *Melbourne@5million* and improve connectivity between east and west of metropolitan Melbourne.

2. To provide an alternative crossing of the Maribyrnong River, as outlined in the *Victorian Transport Plan* (VTP), to reduce over reliance on the West Gate Bridge and the M1 corridor.

3. To reduce freight traffic and congestion on local streets in the inner west of Melbourne, support development of Footscray as a Central Activity District and enhance other key centres within the region.

4. To provide a critical link in the National Land Transport Network, capable of accommodating the expected freight growth as outlined in the *Freight Futures – Victorian Freight Network Strategy*.

5. To integrate the project development with other transport initiatives outlined in the VTP, in particular, the key public transport projects and walking and cycling plans.

In response to applicable legislation and government policy, a number of social, environmental and economic objectives have been developed for WestLink. These are:

6. To pursue a high quality urban design that enhances visual amenity and integrates the development with local landscapes.

7. To provide positive outcomes for residential communities in relation to noise, air quality and safety and to minimise disruption during construction to residents, businesses and transport users.

8. To pursue opportunities to improve community connectivity and cohesiveness and to avoid or minimise the displacement of residents and businesses.

9. To protect and enhance the economic viability of the surrounding areas and facilitate economic development and renewal in the region.

10. To protect or minimise impact on ecological values within the project area, including habitat connectivity and species listed under relevant State and Commonwealth legislation.

11. To protect and maintain waterway and floodplain function of the Maribyrnong River and Kororoit and Stony Creeks, including stability, stream flow, amenity, instream habitat and water quality.

12. To protect or minimise impact on Aboriginal and European heritage values.

13. To address the principles of ecologically sustainable development for example by incorporating climate change adaptation, facilitating the beneficial use of material from tunnel excavation and accommodating use of recycled materials, where practicable.

14. To achieve net community benefit having regard to social, economic and environmental factors.

The above objectives have been established to guide the development of WestLink and will be used in conjunction with the assessment requirements specified by the Minister for Planning to evaluate the potential effects of the project.

1.3 WestLink - Strategic context and project need

Melbourne's forecast of continued strong economic and population growth, means there will be a significant increase in demand for travel from both the private and commercial sectors in the coming years. This increase would be experienced across all forms of transport including private cars, road based public transport, freight vehicles and rail (encompassing both freight and public transport).

A growing economy drives demand for increased access to international markets, achieved largely through the city's ports and airports. Melbourne contains Australia's largest container port, the Port of Melbourne, and efficient access to and from the port will be a key factor in facilitating Melbourne's growth. This comes with its own set of challenges including the port's proximity to the CBD and nearby residential areas.

Freight volume across all transport modes is expected to grow by almost 50 per cent by 2020 and by around 100 per cent by 2030 compared to today's levels. In particular, total container trade through the Port of Melbourne is projected to increase at least four-fold to eight million twenty foot equivalent unit containers by 2035 (*Freight Futures,* 2008*)*. This will exacerbate the existing congestion and amenity issues resulting from freight vehicles travelling on unsuitable arterial roads within the inner western suburbs.

Victoria, Melbourne and the western suburbs are experiencing unprecedented population growth. The second release of *Victoria in Future (*2008) provides the following population predictions:

- Victoria will grow from around 5.1 million people in 2006 to 7.4 million by 2036.
- Melbourne will grow 1.8 million people to 5.5 million by 2036.
- Western Melbourne will grow by 54 per cent to around 970,000 people by 2026.

As population is a key driver of transport demand, this growth would result in significant congestion on an already stressed system in the near future. The cost of congestion in Melbourne was estimated by the Bureau of Transport and Regional Economics to be $3 billion per annum in 2005 and forecast to increase in cost to $6 billion in 2020. Increasing costs of this magnitude will impact the competitiveness of Victoria's businesses.

A growing population also drives demand for housing and this has partly been accommodated in the west. This will continue to be the case under the Victorian Government's *Delivering Melbourne's Newest Sustainable Communities* (2009) which outlines a planned expansion of the urban growth boundary to Melbourne's western growth areas. Population growth in this area is outstripping the growth of local employment opportunities and creating significant travel pressures as more people travel from the west into the CBD and surrounds for work. These pressures are exacerbated by the limited number of road crossings over the Maribyrnong River, which in turn results in an over-reliance on the West Gate Bridge and M1 corridor.

Capacity constraints on the West Gate Bridge during peak times and the vulnerability of the traffic network to any incident on the bridge drives the need for an alternative as the population grows and travel demand increases. The practical carrying capacity of the West Gate Freeway is already fully taken up during peak periods. The West Gate Bridge currently carries 160,000 vehicles per day and this volume is expected to increase to more than 235,000 by 2036. Current upgrades to the M1 corridor will provide some relief , however it is expected that traffic demand will exceed this additional capacity within 10 to 15 years (*Investing in Transport* (2008)).

The past decade has seen the Victorian Government recognise and respond to these challenges through a series of policies, plans and major projects. A cornerstone government policy relevant to this project is *Melbourne 2030* (2002) which outlines the framework to manage Melbourne's growth in a responsible and sustainable manner. A key direction of this policy involves developing a land use pattern, in which attractions are concentrated at a number of nodes (principal activity centres and transit cities) and these nodes are connected with a network of high-quality public transport services, the Principal Public Transport Network (PPTN). The reduction of congestion in these areas is highlighted as key to improving the liveability of these growing communities, in addition to facilitating better public transport access and encouraging use of sustainable transport modes (walking/cycling).

Melbourne 2030 also recognises the importance of identifying, planning and improving the management of key freight routes to increase the efficiency of freight operations, allow for expected growth and reduce associated amenity impacts. In particular, it identifies the need to better use existing roads in inner suburbs, including through the removal of truck traffic from these networks.

Melbourne @ 5 million builds on the policy initiatives in *Melbourne 2030* and responds to population forecasts in *Victoria in Future.* It outlines the need to direct future growth in population and employment to the north and west of Melbourne, whilst recognising the need to link this with increased capacity in the transport system. It also identifies Footscray as one of six key Central Activity Districts requiring a high level of accessibility for all transport modes and serviced by the Principal Public Transport Network.

In 2006, the Victorian Government commissioned Sir Rod Eddington to undertake an investigation into the transport solutions for connecting Melbourne's eastern and western suburbs. The findings of this extensive East West Link Needs Assessment Study were released in March 2008. The report, *Investing in Transport* (2008), identifies many of the issues highlighted above and one of two major infrastructure recommendations presented to address these is a cross city road corridor providing an alternative to the West Gate Bridge.

The policies and investigations described above define the current and future land use planning and associated transport issues facing Victoria and provide objectives and recommendations for addressing these as the State continues to grow. The VTP outlines the strategic transport projects which will deliver a transport network capable of supporting Victoria's growth. It contains a suite of projects encompassing passenger and freight rail, public and sustainable transport initiatives and road projects.

A companion document, *Freight Futures* (2008), recognises the importance of reshaping Melbourne's pattern of freight land use and movement in order to create a sustainable future for Melbourne. Key goals include maintaining and improving efficiency of the freight network, ensuring sufficient capacity to handle the growing freight task and enhancing the sustainability of the freight network. The requirement to provide efficient access to the Port of Melbourne to support economic growth in Victoria is highlighted in the VTP. Both documents similarly define the need to reduce the impacts of growing freight vehicle numbers on residential amenity.

An alternative to the West Gate Bridge is identified as an integral project to achieving the aligned goals of both the VTP and *Freight Futures* (2008) through protecting and enhancing the freight network whilst addressing the impact on amenity of freight vehicles in the inner west. The plan for the West Gate Alternative in the VTP (now referred to as WestLink) states that the link will run under Footscray thus supporting the development of this locality as a Central Activity District.

The removal of heavy vehicle traffic from this growing metropolitan centre will allow increased and more reliable public transport access, whilst also encouraging increases in the number of pedestrians and cyclists through creation of a safer and less congested network of roads and shared use paths. WestLink is part of the planned implementation process for the strategic transport outcomes set out by the Victorian Government.

1.4 Project components

The key components of WestLink are as follows:

- A road tunnel under Footscray between West Melbourne and West Footscray.
- Tunnel portals at locations to be determined, with the eastern portal expected to be located east of the Maribyrnong River, in the area generally between Dynon Road and Footscray Road, and the western portal expected to be in the vicinity of Geelong Road in West Footscray.
- Upgrades to Sunshine Road, Dempster Street and Paramount Road.
- A freeway standard road connection between the western tunnel portal and the Western Ring Road, Sunshine West.

It is proposed to deliver WestLink in two stages as follows:

- Stage 1 would comprise the road tunnel under Footscray and upgrades to Dempster Street and Paramount Road.
- Stage 2 would comprise a freeway standard road connection between the western tunnel portal and the Western Ring Road, Sunshine West.

This Project Proposal is for the whole project, as it is necessary to secure planning and environmental approvals for the entire project. As a preferred route for the project is yet to be identified, preliminary work has been undertaken by LMA prior to the statutory approvals process to identify a short list of options. The *Investing in Transport* report looked at high level alternatives for the route and these have been used as a starting point for developing initial route options. A number of locations were considered to optimise opportunities and minimise potential impacts in this initial project phase. The shortlisted options are indicated on the map provided as Attachment 1.

1.5 Ancillary of subsidiary activities

There are no expected ancillary or subsidiary activities relating to this project that are known at this stage. Associated road network changes, any access restoration and shared use path provisions are considered to be part of the core project. These works are likely to be largely in the immediate vicinity of WestLink.

It is anticipated that a shared use path will also be provided as part of WestLink. The shared use path may require additional approvals such as a Planning Scheme Amendment to facilitate its use and development.

1.6 Proposed project schedule

Indicative project timings are outlined in Table 1.1 below.

Table 1.1: Indicative project timings

Tasks	Indicative project timings
Development and assessment of initial route options including public consultation and display (preliminary work prior to statutory approvals process)	Mid-2010
Development and assessment of shortlisted options including public consultation and display (as part of the statutory approvals process)	Late-2010
Environmental assessment documentation completed for the preferred option (as part of the statutory approvals process)	Mid-2011
Public exhibition and decision on project	Late 2011
Construction Stage 1	2013-2016*
Construction Stage 2	2016-2019*

* It is important to note that these timings are indicative only and that timing of the project procurement is subject to future decisions by the Victorian Government.

1.7 Project delivery approach

This project will be delivered by the Linking Melbourne Authority (LMA; formerly Southern and Eastern Integrated Transport Authority) established in 2003 to oversee the delivery of the $2.5 billion EastLink project. More recently, LMA was allocated the responsibility for facilitating the $759 million Peninsula Link project. These projects are two of the largest urban road projects in Australia.

No decision has been made in relation to the delivery approach for WestLink.

2. PROJECT DESIGN

2.1 Outline description of works

As described in Section 1.4, the key components of the project are a road tunnel and a freeway standard road. The main construction activities will be civil and structural works normally expected with major freeway projects including:

- clearing of vegetation (considered to be minor)
- tunnel construction under Maribyrnong River
- general earthworks including topsoil stripping, excavation (including for tunnels); filling and topsoil spreading
- relocation of utility services
- installation of drainage and water quality treatments
- pavement construction
- installation of pedestrian and cycle paths
- bridgeworks and other structural works
- landscaping
- installation of noise and screening barriers
- installation of traffic controls, lighting and signage
- tunnel safety and management systems.

2.2 Design parameters

Design parameters dictate the necessary design requirements which in turn determine the maximum spatial envelope within which the project components would be developed. At this early stage of the project, broad design parameters have been developed for WestLink in accordance with the *VicRoads Road Design Guidelines*. These parameters include:

- Design vehicle:
    - Generally a B-Double truck for interchange and motorway elements
    - Where dual right turn lanes are required:
        - Port Access – Two B-Doubles turning concurrently
        - All other intersections – B-Double and car turning concurrently
    - Assumes tunnel will not be a nominated over-sized route or suitable for placarded loads. These vehicles will continue to use the existing routes designated for such vehicles (as is the case with CityLink and EastLink)
- Design speeds: the road will be designed to the speed limits shown in Table 2.1.

Table 2.1: Road type, design speed and posted speed limit

Road type	Design Speed (km/h)	Speed Limit (km/h)
Freeway (other than tunnel)	110	100
Tunnel	80	80
Freeway to freeway ramps	90	80

The decision to design and post speeds at the same limit in the tunnel is based on the principle that drivers are alert when entering a tunnel situation. The tunnel is a controlled environment, which is likely to have lane and speed control thus reducing the potential for speeding. This has been accepted on other tunnel projects such as EastLink and CityLink.

The design of ramp lengths will need to ensure that a suitable distance is provided between each cross road and its connection with WestLink to allow for appropriate acceleration and deceleration. Modifications to intersecting roads are to be designed for the current posted speed for the intersecting plus 10km/h.

The freeway spatial envelope would be designed to have a cross section of up to six lanes. All cross/service roads would be designed to match the current road widths and be capable of incorporating any proposed upgrades. Public transport, cycling and landscaping are also to be considered in defining the widths of the cross/service roads. Typical freeway cross-sections are provided in Attachment 5.

2.3 Environmental performance parameters

WestLink design, construction and operation would be subject to relevant Commonwealth and Victorian legislation and various policies and guidelines which are widely accepted as defining State practice. Key sources of information which will assist in the establishment of environmental performance parameters for WestLink include:

- Policies under the *Environment Protection Act* 1970 such as:
    - State Environment Protection Policy (SEPP) Air Quality Management 2001
    - SEPP Ambient Air Quality 2001
    - SEPP Control of Noise from Industry and Trade N-1 1991
    - SEPP Groundwaters of Victoria 1997
    - SEPP Prevention and Management of Contaminated Land 2002
    - SEPP Waters of Victoria 2003
    - Industrial Waste Management Policy (Waste Acid Sulphate Soils) 2000
- EPA Technical Guidelines TG302/92 for Construction and Demolition Works
- EPA Publication 480 Environmental Guidelines for Construction Works 1996
- EPA in-tunnel air quality requirements as specified for CityLink and EastLink
- VicRoads Traffic Noise Reduction Policy
- Victoria's Native Vegetation Management – A Framework for Action 2002
- Urban Stormwater Best Practice Management Guidelines 1999.
- Kororoit Creek Regional Strategy 2005-2030
- Stony Creek Neighbourhood Environment Improvement Plan
- Maribyrnong River Valley Design Guidelines 2010
- Port Phillip and Westernport Regional River Health Strategy

The final environmental performance criteria will be determined through the statutory approvals process taking into account the requirements of legislation and applicable policy directions as well as the outcomes of environmental investigations.

3. PROJECT ALTERNATIVES

A three phase process will be used to identify the most suitable alternative for the project, taking into account economic, social and environmental constraints and opportunities. The investigation of alternatives is an iterative process whereby information on potential impacts will inform the design of the project across the three phases of development. The first of these phases will be completed as preliminary work prior to the statutory approvals process, whilst the latter phases will be undertaken as part of the statutory approvals process. An overview of the process for investigation of alternatives is presented in Figure 1 below.

In Phase 1, a range of initial route options were identified. Following assessment of these, a number of route options were shortlisted for further consideration. In Phase 2, following further investigations, a preferred option will be proposed. In Phase 3, the preferred option will be refined and assessed in detail.

Figure 1: Overview of process for investigation of alternatives

Phase 1
Project objectives, responding to relevant legislation and policy were established to guide the development and evaluation of route options. Indicators and assessment criteria were established corresponding to project objectives to enable assessment of initial project options. The process allows for a phased approach to the assessment of alternatives as criteria will be refined as the project progresses and more detailed information becomes available.

The project team, including representatives from Linking Melbourne Authority, VicRoads and the AGA Joint Venture identified a list of initial route options to be assessed during Phase 1. This was undertaken in concert with an initial risk assessment which identified and assigned a risk category to key social, environmental and economic issues associated with the project. Further information on this process is provided in Section 6. The outcomes of community consultation including Community Values Workshops, was considered in developing and assessing options.

Preliminary specialist studies have been undertaken to evaluate initial route options against the assessment criteria. The findings of the process will be communicated through a consultation process including public displays to be held in mid-2010. Following consideration of stakeholder feedback, it is envisaged that shortlisted options will be identified to undergo further assessment in Phase 2.

Phase 2
In Phase 2, the assessment criteria will be refined in the context of applicable legislation and policy and based on community feedback. The shortlisted options will undergo further design development to provide a basis for further assessment.

Detailed field investigations will then be undertaken to provide more information on the existing conditions along the route corridor(s). Specialists will use this information to assess shortlisted options against the refined assessment criteria and this information will be used to identify a preferred option. A consultation process including public displays will be held to seek community feedback on the preferred option and any possible refinements. This feedback will be used to inform scoping the Phase 3 impact assessments.

Phase 3

During Phase 3, the preferred option will be confirmed and detailed specialist impact assessments undertaken. Modifications may be made to the design to respond to any significant findings.

At the conclusion of each of the first two phases, a report will be produced detailing the alternatives considered, the assessment process, investigations undertaken and the result of the assessment. Phase 3 culminates in the submission of the impact assessment documentation accompanied by the concept design for the preferred option. This material will also be presented to the community.

4. PROJECT AREA

The project is within the inner western suburbs of Melbourne between the Port of Melbourne and the Western Ring Road. The land required for WestLink will be located within the spatial envelope shown hatched in Attachment 1.

The region is highly urbanised and incorporates a wide range of industrial, residential and commercial land uses including the Port of Melbourne and the Footscray Central Activity District (CAD). The Footscray CAD and surrounds are currently undergoing significant land use change from industrial use to residential, commercial and retail uses, in accordance with the objectives for CADs outlined in *Melbourne 2030*.

The area between Paramount Road and Hyde Street, incorporating the suburbs of West Footscray, Kingsville, Seddon and Footscray is predominantly zoned residential.. This is the primary residential area located within the project area. Large residential areas do however exist immediately to the north of the project area.

The project area is highly industrialised with much of it is zoned for industrial use. The area contains the Port of Melbourne and port related industry to the east of the Maribyrnong River and a large tract of industrial land from Paramount Road to the Western Ring Road. The area east of the Maribyrnong River between Dynon Road and Footscray Road contains intensive port related uses, the City of Melbourne Waste Transfer Station and the site of the proposed Melbourne Freight Terminal. Areas west of Paramount Road are defined by the Maribyrnong City Council as industrial precincts. Current uses include container yards, landfills, a quarry, rail depots and significant industrial, warehouse and wholesale businesses.

The region has a relatively flat terrain containing three perennial waterways including Kororoit Creek, Stony Creek and the Maribyrnong River. These waterways are generally in poor condition although they do provide migratory corridors for aquatic species (*Preliminary Ecology Assessment, GHD, 2010*).

The environment in the region is generally in a poor ecological state. The project area is predominantly urbanised and has extensive industrial areas which has resulted in the removal of significant amounts of native vegetation. Exotic weeds and planted species now dominate the vegetation in the area. There are, however, a few patches of remnant vegetation restricted to patches of grassland along the rail reserve in the north of the project area and in the vicinity of the Western Ring Road. The most notable of these is the Derrimut Grassland Nature Conservation Reserve which is known to contain State and Commonwealth listed species. A number of escarpments which may represent sites of geomorphological significance occur within the Kororoit Creek catchment.

Areas of potential cultural heritage sensitivity and a number of registered Aboriginal cultural heritage sites are present within the project area. Areas of sensitivity are located within 200 metres of the waterways listed above and also the Derrimut Grassland Nature Conservation Reserve. Most of the 33 identified sites are associated with Kororoit Creek and the Derrimut Grassland Nature Conservation Reserve with only four occurring at other locations.

Two passenger railway lines are situated within the project area. These are the Williamstown line running roughly adjacent to and west of the Maribyrnong River in a north-south direction and the Sydenham line running along the northern boundary of the project area in an east-west direction. A freight line bisects the project area running south-east to north-west between the passenger lines. The Regional Rail Link project, currently under development is planned on the northern edge of the area being investigated for WestLink.

Details on the existing conditions in the project area are provided in Section 5.

5. Description of the existing environment

5.1 Soil and vegetation characteristics

The project area encompasses two bioregions with differing geology and vegetation characteristics. The portion east of the Maribyrnong River is located within the Gippsland Plain Bioregion with soils comprising 'erodible Tertiary sediments (sandstones and gravels) and Quaternary riverine alluvial deposits (gravels, silts, sands)'. Vegetation predicted prior to European settlement in this section indicates that the area would have been dominated by brackish wetlands and swamps. However, urbanisation and development (mostly related to Port of Melbourne activities) has involved the removal of almost all of this vegetation. Exotic weeds and planted species now dominate the vegetation in this section of the project area.

The western section of the project area is within the Victorian Volcanic Plain Bioregion which is dominated by fertile basalt derived soils. The area under consideration was dominated prior to European settlement by extensive grasslands, with riparian vegetation existing along both Stony and Kororoit Creeks (pre-1750 Ecological Vegetation Classes, DSE Biodiversity Interactive Map). Today, little of this vegetation remains due to the urbanisation and industrialisation of the area. The only remnants are patches of once-dominant grasslands in the vicinity of the Western Ring Road and along the rail reserves. Exotic weeds and planted species now dominate the vegetation in this section of the project area.

5.2 Outstanding natural features

A number of sites of geomorphological significance occur within the Kororoit Creek catchment area. A site of geomorphological importance occurs within the project area in Sunshine. This feature is described as an ingrown anvil shaped meander which occurs south of Wright Street, Sunshine and wraps around Buckingham Reserve. This feature occurs directly north of the project area, and would not be impacted by the project.

The estuarine section of Kororoit Creek in the Altona Coastal Park is a remnant of the original large tidal wetland and sandridge complex at the mouth of Kororoit Creek. This feature would not be directly affected by the project area, as it would be intended that downstream impacts such as sedimentation would be appropriately managed.

There are no known sites of geomorphological significance in the project area which are located within the Maribyrnong or Stony Creek catchments.

5.3 Gradient

The project area is generally flat, however there are some notable steeper slopes along sections of Kororoit Creek.

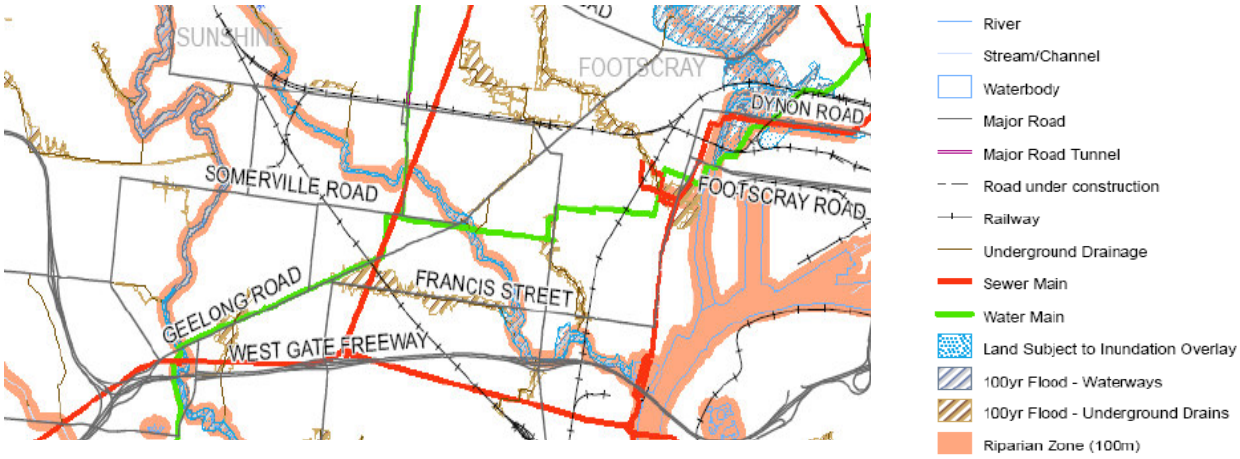
Immediately east of Kororoit Creek, significant landfill and quarrying activities have taken place over a long period of time and as such, the topography at this location has been altered.

5.4 Waterways

The project area crosses three perennial waterways in Melbourne's western region: Kororoit Creek, Stony Creek and the Maribyrnong River. Kororoit Creek discharges directly to Port Phillip Bay near Altona, while Stony Creek and the Maribyrnong River are tributaries to the Yarra River, which also discharges to Port Phillip Bay.

The waterway condition of these rivers and creeks is rated from very poor to moderate by Melbourne Water. A map showing these waterways and other water-related opportunities and constraints, including land subject to inundation and riparian zones in the vicinity of the project area is provided in full in Attachment 4 and shown for the project area in Figure 2.

Figure 2: Summary of water resources opportunities and constraints (source: EWLNA Environment and Heritage Study, Maunsell-SKM, 2008)



Maribyrnong River

The Maribyrnong River flows through a gorge area, significant because of its landscape values, recreational opportunities, geomorphological significance and European and Aboriginal heritage values. Upstream of Keilor, Deep Creek and Jacksons Creek join to form the Maribyrnong River. The river forms a long estuary that winds through Essendon and Flemington before meeting the Yarra River in Footscray. The Maribyrnong River is a major corridor for wildlife, providing both habitat and passage for native fish. This includes the vulnerable Australian Grayling, which migrates between freshwater streams and the ocean. Nutrient levels within the river are reported to be elevated as a result of a combination of urban stormwater, industrial inputs and some unsewered premises in the Macedon area.

The lower Maribyrnong River flows through a largely urbanised area before joining the Yarra River. River Red Gums (*Eucalyptus camaldulensis*), and the resident platypus (*Ornithorhyncus anatinus*) population (well upstream of the project area), are important community values in the waterway (Note: neither species is currently listed as threatened under state or federal legislation). Fishways have been installed in the lower Maribyrnong River, which will enable important native fish species such as the Australian Grayling to recolonise the upper tributaries.

Melbourne Water has indicated that the Maribyrnong River services a catchment of approximately 143 square kilometres and yields an annual flow of 120,000 million litres. Numerous properties upstream of Shepherd Bridge, along the Maribyrnong River, are currently subject to flood inundation during a 1 in 100 year flood event.

Kororoit Creek

Kororoit Creek is one of the major creeks in the Western suburbs. It flows from a mostly rural catchment around Gisborne, Bulla and Melton into an urban region at Caroline Springs and Deer Park, before passing through industrial areas near its mouth at Altona. Several sections of Kororoit Creek contain deep pools which are well vegetated with macrophytes. These pools occur particularly near the Westgate Freeway, and upstream from Somerville Road and are likely to provide valuable habitat for a wide range of species. However; due to inconsistent flows, these pools are regularly disconnected.

The aquatic fauna of Kororoit Creek is described in the *Kororoit Creek Regional Strategy 2005- 2030* as generally moderate to good with sites located in the mid to upper catchment scoring higher ('healthier') ranks than sites in the lower catchment. Growling Grass Frog is recognised as a key species of the riparian zone of Kororoit Creek. Their presence along Kororoit Creek has been recorded in a survey commissioned by Melbourne Water from sites as far apart as Racecourse Road in Altona to Beattys Road in Rockbank, as well as numerous sites in between.

The Index of Stream Condition (ISC) has been developed as a tool for Victorian waterway managers to benchmark waterway condition. ISC data collected in 2000 identified the Kororoit catchment as having wide depauperate nature of riparian vegetation and indigenous riparian vegetation; the presence of litter, both instream and on some sections of bank; lack of suitable densities of woody debris and weed infestations. Litter is a problem throughout the lower catchment, more so than the upper reaches due to easier access for the public and high flows washing litter downstream. Weeds are widespread throughout the catchment.

The National Estuary Assessment Framework has identified lower estuarine reaches of Kororoit Creek (well downstream from the project area) as being extensively modified in condition. Kororoit Creek functions as a tidal creek. This means that the estuary would have low sediment trapping efficiency, naturally high turbidity and well mixed circulation with low risk of sedimentation.

Numerous properties along Kororoit Creek (both industrial and residential) are currently subject to inundation during a 1 in 100 year flood event.

Stony Creek
Stony Creek has an urban and industrial catchment and flows through the inner western suburbs of Melbourne. Rising in the suburb of Sunshine, it flows through Sunshine, Tottenham, West Footscray and Yarraville. Much of Stony Creek is highly modified and the surrounding catchment is mostly urban and industrialised. Natural reaches occur through some of the parks and reserves. Although environmental values tend to be low, the creek supports some native frog species and a number of native fish are likely to inhabit the lower estuarine reach (well downstream of the project area). The mid reaches of the watercourse (between Duke Street Sunshine, and Francis Street Yarraville) are characterised by very little flow or available habitat for aquatic fauna. Fish species may pass through this section during periods of sufficient flow, but the creek is highly unlikely to provide sufficient habitat for many species.

Sediments within Stony Creek Backwash (downstream of the project area) are also known to be contaminated with petroleum hydrocarbons and heavy metals. Additionally, the Stony Creek Reserve, adjacent to the West Gate Freeway, is at risk from flooding associated with high water levels within Stony Creek.

5.5 Flora and fauna

The desktop review for flora and fauna included a background search (with five kilometres radius of a line approximately midway through the overall project area) using the following ecological databases and publications:

- Commonwealth Government's *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act) Protected Matters Search Tool (PMST)
- DSE's Flora Information System (FIS version 2007)
- DSE's Atlas of Victorian Wildlife: Victorian Fauna Database (AVW version 2007)
- Victorian Aquatic Faunal Database (VAFD, DSE)
- BioSites mapping from the Victorian Department of Sustainability and Environment (DSE, DSE 2005b)
- Ecological Vegetation Class (EVC) mapping from DSE.

Ecological Vegetation Classes
The native vegetation of Victoria is classified by Ecological Vegetation Class (EVC). Over recent years, DSE completed the task of mapping extant native vegetation across the state of Victoria using the EVC classification system (which includes areas within and surrounding the project area). Although the DSE mapping is a broadly reliable guide to the extent and type of native vegetation occurring within an area, there are a number of widely acknowledged limitations to this mapping information.

Modelling of the extents of EVCs by DSE indicates four EVCs occur within the project area, in two Bioregions (Victorian Volcanic Plain and Gippsland Plain), namely:

- Swamp Scrub (EVC 53, Endangered in Gippsland Plain Bioregion)
- Plains Grassland (EVC 132, Endangered in Victorian Volcanic Plain Bioregion)
- Brackish Wetland (EVC 656, Endangered in Gippsland Plain Bioregion)
- Brackish Grassland (EVC 934, Endangered in Gippsland Plain Bioregion).

Although Swamp Scrub, Brackish Wetland and Brackish Grassland are predicted along the banks of the Maribyrnong River, they were not identified as being present in recent surveys (GHD, 2009) and are considered unlikely to occur within the project area.

Plains Grassland is predicted to occur adjacent to the Western Ring Road (on both sides) and has also been identified in the rail reserve adjacent to Sunshine Road. The presence of this EVC was confirmed in recent site surveys (GHD, 2010).

Threatened communities

Two threatened communities listed under the FFG Act are predicted to occur within the project area. The *Western (Basalt) Plains Grasslands Community* is associated with Plains Grassland (EVC 132) which is predicted to occur within the project area and has been identified at specific locations that may be relevant to the project (Mobil Service Station BioSite, Braybrook Rail reserve BioSite and in the Derrimut Grassland Nature Conservation Reserve), see Attachment 2.

The *Victorian Temperate Woodland Bird Community* is also predicted to be within the project area. The description of this community identifies *key indicator bird species* (the presence of which confirm the presence of the community) and *associated bird species* (the presence of which indicate the *potential* presence of the community). Four key indicator species and six associated bird species are known to occur or predicted to occur within five kilometres of the project area (AVW/PMST). These are detailed in Table 5.1.

Table 5.1: Indicator and associated bird species – Victorian Temperate Woodland

Species Type	Species Name
Key Species	• Barking Owl, *Ninox connivens* • Little Lorikeet, *Glossopsitta pusilla* • Jacky Winter, *Microeca fascinans* • Regent Honeyeater, *Anthochaera* (*Xanthomyza*) *Phrygia.*
Associated Species	• Powerful Owl, *Ninox strenua* • Restless Flycatcher, *Myiagra inquieta* • Rufous Whistler, *Pachycephala rufiventris* • Crested Shrike-tit, *Falcunculus frontatus* • White-browed Woodswallow, *Artamus superciliosus* • Dusky Woodswallow, *Artamus cyanopterus.*

Despite historical records of ten members of this bird community, the likelihood of the community occurring within the project area is very low. This is based on the disturbed and urbanised condition of the project area and the fact that historically most of the area was dominated by grasslands rather than woodlands.

Threatened flora species

The FIS search identified 1351 flora species that have been historically documented within five kilometres of the project area. The PMST results identified a further two flora species. Thus, from both sources (FIS, PMST), a total of 1353 flora species were identified within five kilometres of the project area, 702 of which are indigenous, 30 of which are naturalised and 621 of which are not indigenous to the project area. A number of these records are from the early 1900s or earlier, prior to the urbanisation of the area.

Of the historically documented species, 19 are listed under the FFG Act. Not all of these species are considered likely to occur. An assessment undertaken for the project (Attachment 6) indicates that nine FFG Act-listed species are considered 'possible occurrences' in the project area. These are listed in Table 5.2 and the majority of these are associated with grasslands and the remainder with waterways or seasonally wet areas.

Table 5.2: Listed threatened flora species with a possibility of occurrence within the project area.

Species	Common Name	EPBC Status	FFG list	Possibility of Occurrence
Amphibromus fluitans	River Swamp Wallaby-grass	Vulnerable		Possible. Nearest known occurrence are two 1991 records within five kilometres to the west of the project area (FIS). Potential habitat may occur along creeks within the project area.
Amphibromus pithogastrus	Plump Swamp Wallaby-grass		✓	Possible. Nearest known occurrence is a 1991 record to the south west of the project.
Comesperma polygaloides	Small Milkwort		✓	Possible. Recent records located in grasslands to the west of the project area.
Cullen parvum	Small Curf-pea		✓	Possible. One recent record located to the west of the project.
Cullen tenax	Tough Scurf-pea		✓	Possible. Known to occur in Braybrook Rail Reserve in 1982 and to the north of the project area.
Dianella amoena	Matted Flax-lily	Endangered		Possible. Occurs in grasslands and grassy woodlands. Known from two locations within five kilometres to the north of the project area.
Diuris basaltica	Small Golden Moths	Endangered	✓	Possible. Nearest known occurrence is in grasslands to the west of the project area.
Diuris punctata var. punctata	Purple Diuris		✓	Possible. Nearest record is a 1971 record in what is now a housing estate to the north of the project area.
Glycine latrobeana	Clover Glycine, Purple Clover	Vulnerable	✓	Possible. Potential habitat is restricted to grasslands or grassy woodlands. Has not been recorded within five kilometres of the project area (FIS).

Species	Common Name	EPBC Status	FFG list	Possibility of Occurrence
Pimelea spinescens subsp. spinescens	Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea	Critically Endangered	✓	Present. Grows in grassland or open shrubland on basalt-derived soils west of Melbourne. Has been recorded in the grasslands immediately west of the project area. Historically recorded in Derrimut Grasslands.
Rutidosis leptorrhynchoides	Button Wrinklewort	Endangered	✓	Possible. Has been recorded at numerous locations in grasslands within the project area.

Threatened fauna species

The AVW search identified 253 fauna species that have been historically documented within five kilometres of the study area. The PMST results identified a further six fauna species (one terrestrial mammal, one marine mammal and four native birds). Thus, from both sources (AVW, PMST), a total of 259 terrestrial or marine fauna species were identified within five kilometres of the study area. The AVW has one record of a *Pseudophryne (*species unknown) frog near the study area. This has a good chance of being a record of the Southern Toadlet (*P. semimarmorata*), whose natural distribution encompasses the study area, which would increase the total number of amphibians to ten, and the total number of fauna species to 260.

Of the historically documented species, 32 are listed under the Victorian FFG Act (six mammals, 18 birds, two reptiles, three fish, two frogs and one invertebrate.

On the basis of historical records and the expectations of the presence of suitable habitat in the project area, 12 FFG-listed species are considered likely to use or visit habitats within or near the project area. These are listed in Table 5.3.

Table 5.3: Listed threatened fauna species likely to occur within the project area.

Species	Common Name	EPBC Status	FFG list	Possibility of Occurrence
Mammals				
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	✓	Likely. Six AVW records up to 2006. Expected to fly over project area, and may visit suitable habitat (flowering or fruiting trees) for foraging.
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat		✓	Likely. Most likely to fly over the project, but may roost in suitable hollows during the day.
Birds				
Lathamus discolor	Swift Parrot	Endangered	✓	Likely. Four historical records, most recently in 2002. May fly over project area. May visit suitable habitat (winter flowering eucalypts and other trees) for foraging.
Egretta garzetta	Little Egret		✓	Likely. May occur occasionally in any waterbody habitat.
Ardea intermedia	Intermediate Egret		✓	Likely. May occur occasionally in any waterbody habitat.
Ardea modesta	Eastern		✓	Likely. May occur occasionally in

Species	Common Name	EPBC Status	FFG list	Possibility of Occurrence
	Great Egret			any waterbody habitat.
Accipiter novaehollandiae	Grey Goshawk		✓	Likely. Most likely to forage occasionally within suitable habitat in project area.
Ninox strenua	Powerful Owl		✓	Likely. Known to occur regularly in large parks in Melbourne. May visit project area to forage.
Reptiles				
Delma impar	Striped Legless Lizard	Vulnerable	✓	Likely. Numerous recent AVW records (at least 48 records up to 2005).
Frogs				
Litoria raniformis	Growling Grass Frog	Vulnerable	✓	Likely. Numerous recent AVW records (45 records up to 2002).
Ray-finned fish				
Prototroctes maraena	Australian Grayling	Vulnerable	✓	Likely. Species known to occur in Maribyrnong River, upstream of project area. Species likely to occur downstream also and to move along waterways such as the Maribyrnong River
Invertebrates				
Synemon plana	Golden Sun Moth	Critically endangered	✓	Likely. Species known to occur in grassland habitat towards west of project area (one AVW record (2005). Recent records from Derrimut Reserve (2008), potential habitat along Sunshine Rail Reserve (Ecology Partners, 2010)

BioSites

The Victorian BioSites register maintained by DSE lists sites of known biological significance, referencing specific records of significant flora, fauna and vegetation communities (DSE, 2005b). The significance of BioSites is determined against defined standard criteria and may be of Local, Regional, State, National or International significance. BioSites themselves are not additionally protected by legislation, but often contain species and/or communities that are protected under Commonwealth and State legislation (i.e., EPBC Act and FFG Act).

Three BioSites within the project area are listed in Table 5.4. These BioSites would require site assessments to confirm the location and boundaries of specific features. Other BioSites are located nearby and may require consideration should options outside the project area be considered.

Table 5.4: BioSites considered relevant to the project.

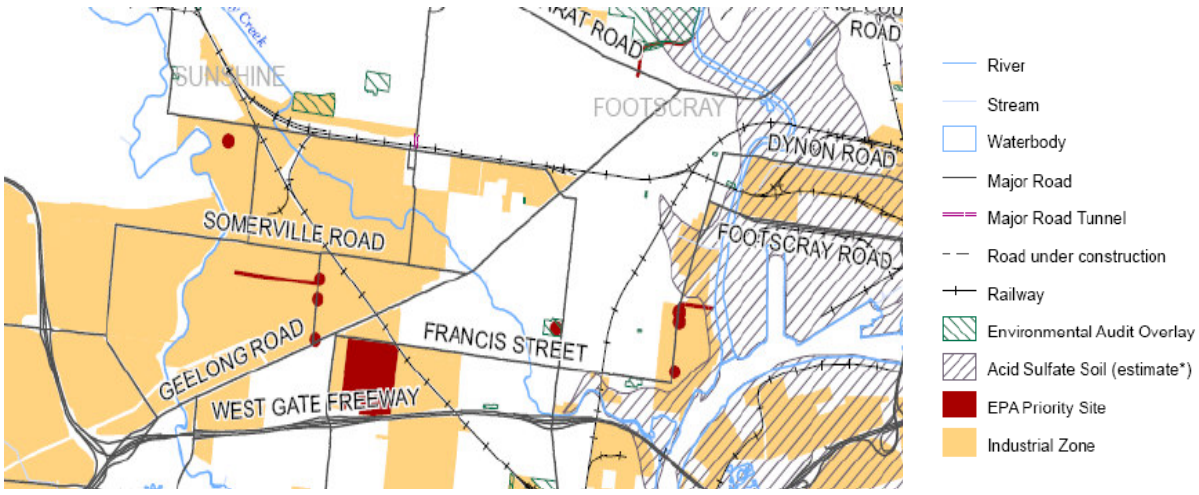
BioSite	Location	Significance	Specific features
Braybrook Rail Reserve (Site ID 3591)	North of rail line adjacent to Sunshine Road, west of Ashley Street.	State	Western Basalt Plains Grassland (FFG listed community, EVC 132, Plains Grassland, potentially listed under EPBC Act depending on quality) *Cullen tenax* (Tough Scurf-pea, FFG listed flora)
Kororoit Escarpments	In sections along Kororoit Creek,	Regional	*Litoria raniformis* (Growling Grass-frog, listed as Vulnerable under

BioSite	Location	Significance	Specific features
– Deer Park (Site ID 5269)	including sections to the north of the project area (specific features cannot be attributed to individual sections at this time).		EPBC Act) EVC 132, Plains Grassland (potentially listed under EPBC Act and FFG act) EVC 191, Riparian Scrub *Tripogon loliiformis* (Rye Beetle-grass, listed as rare on VROTS) *Desmodium varians* (Slender Tick-trefoil, listed as poorly known on VROTS)
Mobil Service Station Grasslands (Site ID 4193)	To the west and north west of the Mobil Service Station on the Western Ring Road, immediately adjacent to the Western Ring Road.	State	*Pimelia spinescens* subsp. *spinescens* (Spiny Rice-flower, listed as Critically Endangered under EPBC Act) Western Basalt Plains Grassland (FFG listed community, EVC 132, Plains Grassland, potentially listed under EPBC Act, depending on quality) *Compesperma polygaloides* (Small Milkwort, FFG listed flora) *Tripogon loliiformis* (Rye Beetle-grass, listed as rare on VROTS)

5.6 Land contamination

Given the industrialised nature of the project area, there exist potential for land contamination. Key sites and locations are shown in Figure 3 below. A more detailed map of land contamination opportunities and constraints is provided in Attachment 4.

Figure 3: Summary of land contamination opportunities and constraints within the study area (source: EWLNA Environment and Heritage Study, Maunsell-SKM, 2008)



Industrial Areas

Areas included within an Industrial Zone and/or an Environmental Audit Overlay of relevant planning schemes may have a higher potential to cause soil and/or groundwater contamination both on site and in surrounding areas. Based on a review of local planning schemes, the major industrial areas within the project area are located in the vicinity of:

- Port Melbourne (including the Port of Melbourne and Fishermans Bend)
- Geelong St, West Footscray

- Sunshine Road, West Footscray / Tottenham
- Somerville Rd, Tottenham, Brooklyn.

EPA Priority sites

A review of EPA priority sites was undertaken in March 2010. There are six sites within the project area that are listed as EPA Priority Sites and these are listed in Table 5.5. Typically these are sites where pollution of land and/or groundwater presents an unacceptable risk to human health or to the environment and require some form of clean up or ongoing management.

The list is not exhaustive and provides an indication of contaminated sites present. There may be additional sites not investigated or reported.

Table 5.5: Sites on EPA Priority Register

Address	Suburb	Municipality	Issue
23 Central Ave	SUNSHINE	Brimbank City Council	Current industrial site, requires assessment and/or clean up
594 Geelong Road (Corner of Macdonald Rd)	BROOKLYN	Brimbank City Council	Former landfill, requires ongoing management
Bunting Road	BROOKLYN	Brimbank City Council	Former landfill, requires ongoing management
69 Bunting Road	BROOKLYN	Brimbank City Council	Illegal dumping, requires assessment and/or clean up
40-60 McDonald Rd	BROOKLYN	Brimbank City Council	Former landfill, requires on-going management
Somerville Road	FOOTSCRAY WEST	Maribyrnong City Council	Current industrial site, requires assessment and/or clean up

Acid Sulphate Soils

Soils that contain significant amounts of iron sulphides are referred to as acid sulphate soils. Acid sulphate soils can cause environmental, economic, engineering, and health impacts, and can constrain development, construction and other activities in affected areas.

A review of the areas with the potential to contain acid sulphate soils was undertaken for the project area based on the Department of Primary Industries, on-line acid sulphate soils map. Details from this source are summarised in Figure 3 and mapping for a larger area is provided in Attachment 4. This data is derived from modelling and does not provide an accurate representation of the location of acid sulphate soils, however it can be used as a guide.

It can be seen from the map that acid sulphate soils are probable around the Port of Melbourne, West Melbourne, Docklands, parts of Yarraville, Kensington and Flemington and along land surrounding the Maribyrnong River, Yarra River and Moonee Ponds Creek.

5.7 Social and Community

The project area is encompassed within the municipalities of Melbourne, Maribyrnong and Brimbank. Outlined below is a description of the social and community profile for each municipality. Although not all listed social infrastructure and open space is contained within the project area, it is considered important to understand the facilities in the surrounding region which may experience indirect effects as a result of the project.

City of Melbourne
The project is within the western section of the suburb of West Melbourne. This suburb includes the area around the Port of Melbourne, and the industrial and transport precinct between Footscray Road and the railway corridor north of Dynon Road. It is bordered to the north by the suburb of Kensington and to the south by the industrial precinct of Fishermans Bend. There is minimal social infrastructure in this area. The western part of the suburb of West Melbourne does not appear to include any residential areas, however it is bordered to the north and east by residential communities including:

- Kensington in the north. This suburb was originally developed for industrial workers, and has since had waves of development, including construction of high-rise housing and the development of Kensington Banks.
- The eastern part of West Melbourne. This which incorporates the western city fringe area and is mixed use in character. However there are significant pressures for residential development in the north Dynon precinct. There is a mix of heritage and newer structures in this area.
- Docklands in the south east. This includes extensive new residential and business uses.

City of Maribyrnong
Maribyrnong is in Melbourne's inner west several kilometres from the CBD. Maribyrnong had a population of 63,137 at the time of the 2006 census. It is one of the most culturally diverse communities in Victoria due to successive waves of migration. In the period after World War II, much of the migration came from southern and eastern Europe, during the 1980s it was largely from Asia (particularly Vietnam) and, more recently, from Africa and the Pacific.

There have been several new housing developments in Maribyrnong in recent years, which have increased the population growth rate. This includes the Edgewater development in Maribyrnong and various developments in Yarraville and Footscray. Council considers that more new housing developments will occur in the future, due to the closure or relocation of major industrial uses.

Major social infrastructure in Maribyrnong includes:

- Footscray Markets and the Footscray Central Activity District
- Footscray Community Arts Centre
- Maribyrnong Aquatic Centre
- Victoria University (and Maribyrnong Student Village)
- Highpoint Shopping Centre
- Whitten Oval
- Medway Golf Club
- Sun Theatre Yarraville.

Major areas of public open space include:

- Maribyrnong River environs
- Footscray Park
- Yarraville Gardens
- Hansen Reserve
- McIvor Reserve

- Pipemakers Park.

City of Brimbank
Brimbank had a population of 168,215 at the time of the 2006 census. Brimbank lies to the west of Maribyrnong. The City of Brimbank includes several established and expanding residential areas and large industrial parks. High population growth is expected to continue in the newer suburbs of Deer Park, Derrimut and Cairnlea, while other suburbs may also see infill development occurring.

Major social infrastructure in Brimbank includes:
- Victoria University (St Albans and Sunshine Campuses)
- Watergardens Shopping Centre
- Sunshine Marketplace Shopping Centre
- Brimbank Central Shopping Centre
- Sunshine Hospital
- St Albans Leisure Centre
- Sunshine Leisure Centre.

Major areas of open public space include:
- Sunshine Golf Club
- Keilor Public Golf Course
- Organ Pipes National Park
- Derrimut Grasslands
- Green Gully Reserve
- Keilor Park Recreational Reserve
- Iramoo Wildflower Grassland Reserve
- Horseshoe Bend Childrens Farm.

5.8 Aboriginal heritage
The project area is heavily disturbed through urbanisation and development. Accordingly, there is generally a low potential for Aboriginal archaeological sites or sub-surface deposits. Areas where there is a greater potential for sites to occur include areas within the vicinity of waterways such as rivers, creeks and swamps and high rises overlooking these areas. Any areas of remnant native vegetation are also more likely to contain sites.

A preliminary investigation into Aboriginal cultural heritage within the project area revealed that four principal areas of sensitivity exist in two categories, which would act as triggers for a mandatory Cultural Heritage Management Plan (CHMP) under the *Aboriginal Heritage Act 2006.* A project, which is defined as having a high impact on sensitive areas would require a CHMP. This project would be defined under the Act as a high impact project due to the level of ground disturbance required for a road of this length.

The categories and areas are as follows;
- Areas within 200 metres of waterways: Maribyrnong River; Stony Creek and Kororoit Creek.
- Parks: Derrimut Grasslands Nature Conservation Reserve.

In addition, a number of registered Aboriginal cultural heritage sites are present within the project area. These sites are listed in Table 5.6. The majority of these are associated with either the Kororoit Creek or Derrimut Grasslands Nature Conservation Reserve and only four, situated between these sites, are not directly associated with the broader areas of sensitivity. All sites are stone artefact scatters.

Table 5.6: Identified Aboriginal cultural heritage sites

Site no	Site Name	Site Type
7822-0277	CAWOOD DRIVE	Artefact scatter
7822-0632	DERRIMUT 1	Artefact scatter
7822-0633	DERRIMUT 2	Artefact scatter
7822-0634	DERRIMUT 3	Artefact scatter
7822-0635	DERRIMUT 4	Artefact scatter
7822-0872	WRR CONNECTION A6	Artefact scatter
7822-0917	ARTHUR BEACHLEY RESERVE 1	Artefact scatter
7822-0918	DUNDALK STREET SITE 1	Artefact scatter
7822-0919	BUCKINGHAM CRES RESERVE 1	Artefact scatter
7822-0920	BUCKINGHAM CRES RESERVE 2	Artefact scatter
7822-0921	BUCKINGHAM CRES RESERVE 3	Artefact scatter
7822-0922	BUCKINGHAM CRES RESERVE 4	Artefact scatter
7822-0926	GILBERTSON INDUSTRIAL ESTATE 1	Artefact scatter
7822-0927	GILBERTSON INDUSTRIAL ESTATE 2	Artefact scatter
7822-0928	GILBERSTON INDUSTRIAL ESTATE 3	Artefact scatter
7822-1353	AUSTRALIA POST FAIRBURN RD (AP1)	Artefact scatter
7822-1354	AP2	Artefact scatter
7822-1728	BOUNDARY ROAD IA 1	Artefact scatter
7822-1729	BOUNDARY ROAD IA 2	Artefact scatter
7822-1804	FAIRBURN ROAD 1	Artefact scatter
7822-1805	FAIRBURN ROAD 2	Artefact scatter
7822-1806	FAIRBURN ROAD 3	Artefact scatter
7822-1807	FAIRBURN ROAD 4	Artefact scatter
7822-1808	FAIRBURN ROAD 5	Artefact scatter
7822-1809	FAIRBURN ROAD 6	Artefact scatter
7822-1810	FAIRBURN ROAD 7	Artefact scatter
7822-1811	FAIRBURN ROAD 8	Artefact scatter
7822-1867	BOUNDARY ROAD IA 3	Artefact scatter
7822-1868	BOUNDARY ROAD IA 4	Artefact scatter
7822-2196	DEER PARK BYPASS 9	Artefact scatter
7822-2270	BUCKINGHAM CRES RESERVE 5	Artefact scatter
7822-2325	WESTERN RING ROAD WIDENING 1	Artefact scatter
7822-2326	WESTERN RING ROAD WIDENING 2	Artefact scatter

5.9 European heritage

An investigation was undertaken to determine the presence and location of known sites of European cultural heritage significance within the project area. The results of this investigation are detailed in Attachment 7 (*European Cultural Heritage – Desktop Review of Statutory and Non-Statutory Listings,* March 2010, Lovell Chen) and summarised below.

Victorian Heritage Register

The Victorian Heritage Register lists the State's most significant heritage places and objects. The Victorian Heritage Register is established under the *Victorian Heritage Act 1995* and provides the highest level of protection for heritage places and objects in Victoria. European heritage site types can include buildings, gardens, trees, archaeological sites, shipwrecks, precincts, land and protected zones. Victorian Heritage Register sites identified in the project area are listed in **Table 5.7**.

Table 5.7: Victorian Heritage Register sites

Site	Location
Saltwater River Crossing Site and Footscray Wharves Precinct	Maribyrnong River, Moreland Street, Bunbury Street, Wingfield Street, Napier Street, Hopkins Street and Maribyrnong Street, Footscray
Henderson House	43-45 Moreland Street and 6 Maribyrnong Street, Footscray
Maribyrnong Town hall (also known as Footscray Town Hall)	61 Napier Street, Footscray
Ercildoune	66 Napier Street, Footscray
Footscray Railway Station Complex	Between Irving and Hyde Streets, Footscray
Former Barkly Theatre	277-287 Barkly Street, Footscray
Primary School No 253	100 Geelong Road, Footscray
Kariwara District Scout Headquarters	4 Hyde Street, Footscray
Main Outfall Sewer	Brooklyn, Laverton North, Truganina, Hoppers Crossing, Werribee, Williams Landing, Brimbank City, Hobsons Bay City and Wyndham City.

Heritage Inventory sites

Heritage Victoria also maintains the Heritage Inventory, which lists all known places and objects in Victoria that possess archaeological value or archaeological potential. Unlike places on the Victorian Heritage Register, Heritage Inventory sites do not have to be of 'State-wide' significance to be listed. However, they are still protected under the *Victorian Heritage Act 1995.* Heritage Inventory sites identified in the project area are listed in Table 5.8.

Table 5.8: Heritage Inventory sites

Site	Location
Mount Derrimut Homestead Complex	275 Mount Derrimut Road, Derrimut
Walsh's Slipway, Boatyard and Wharf	8 Dahlenburg Street, West Melbourne
Botterill and Fraser Slipways, Concrete Landings and Boatyard	4 Dahlenburg Street, West Melbourne
Levine's Punt	Dynon Road, Footscray
Shepherd Swingbridge Abutment Foundations	Napier Street, Footscray
Sims Street Unidentified Timber Slipway and Boatyard	Sims Street, Footscray
Maribyrnong Government Shipyards and Slipways	61-119 Sims Street and 461 Dynon Road, West Melbourne
Lynch's Bridge Piles	Ballarat Road and Smithfield Road, Footscray
Lynch's Ferry Landings	500 Epsom Road, Flemington and Ballarat Road, Maribyrnong
2 Hopkins Street	2 Hopkins Street, Footscray
Former Footscray Tannery	4 Hopkins Street, Footscray
Former Tannery Complex	22 Hopkins Street, Footscray
St Monica's Presbytery	1C Whitehall Street, Footscray
Footscray Bond Store Wharf	Maribyrnong Street, Footscray
Early Building (site)	26 Whitehall Street, Footscray
Ryco Factory Grounds	11-13 and 19-21 Whitehall Street, Footscray
Port Phillip Mills Wharf	Between Dynon Road and Bunbury Street, Footscray
Henderson's Piggery and Wharf	1 Hopkins Street, Footscray

Site	Location
Saltwater Crossing Site	Maribyrnong River, Moreland Street, Bunbury Street, Wingfield Street, Napier Street, Hopkins Street and Maribyrnong Street, Footscray
Early Building (site)	62-64 Whitehall Street, Footscray
Early Building (site)	76 Moreland Street, Footscray
Exchange Hotel	28-30 Napier Street, Footscray
Footscray General Cargo Wharf South	31-33 Maribyrnong Street, Footscray
King Islander Cattle Loading Gantry	31-33 Maribyrnong Street, Footscray
Hilaria Bathing Ship Site and Mowlings Soap and Candle Works	31-33 Maribyrnong Street, Footscray
Former Tottenham Station	Ashley Street and Sunshine Road, Tottenham

Municipal heritage overlays

An investigation into the presence of municipal heritage overlays determined that a considerable number of sites exist in the project area. These are predominantly located within the City of Maribyrnong in the vicinity of Footscray. It is likely that the majority of these would be avoided as a result of tunnelling under this area, however, they are within the project area and the project will deal with the requirements of these overlays as necessary.

The Heritage Overlays of Local Government Planning Schemes, under the *Planning and Environment Act 1987,* list a wide variety of places and sites considered to have either intrinsic heritage significance or contributory significance within the local government area. The primary purposes of the Heritage Overlay are;

- To conserve and enhance heritage places of natural or cultural significance.
- To conserve and enhance those elements which contribute to the significance of heritage places.
- To conserve specifically identified heritage places by allowing a use that would otherwise be prohibited if this will demonstrably assist with the conservation of the significance of the heritage place.

The requirements of heritage overlays apply to heritage places specified in the heritage overlay schedules. A heritage place includes both the listed heritage item and its associated land. Places listed on the heritage overlay may require permits for a variety of works impacting on either their fabric or appearance.

For a full list of European heritage sites that exist within the project area, please refer to Section 5.4 of Attachment 7.

5.10 Commercial and business

There are a number of commercial and business precincts within the project area. Footscray is currently undergoing significant redevelopment and renewal. In accordance with the goals of *Melbourne 2030*, the redevelopment strategy is aimed at encouraging residential development appropriate to an inner-city area and making Footscray a focal point for retail, entertainment and commercial activity.

The Port of Melbourne is Australia's busiest container and general cargo port and handles over $75 billion of trade annually. The port receives approximately 3,500 commercial ship movements per year and provides linkages for exporters to over 300 markets throughout the world. Surrounding land is largely used by businesses supporting the port including container yards, storage and transport companies. This includes the Yarraville Port Industrial Precinct adjacent to the Maribyrnong River south of Footscray Road to the West Gate Freeway.

West of Geelong Road and south of Sunshine Road are the industrial areas of West Footscray Tottenham, Brooklyn, Sunshine West and Laverton North. These areas support a variety of industrial and commercial uses including;

- Industrial warehouse and wholesale businesses including Olex Cables, Simsmetal, Shaw Industries, Feltex Carpets and the Victor Smorgon Group;
- Waste facilities including landfills
- Mobil service station
- Australia Post parcel facility
- Automobile auction site
- Organic recycling
- Logistics companies.

Other notable uses within the project area include;

- Wholesale Fruit and Vegetable Market (to be relocated to Epping in 2011)
- The Coode Island petrochemical facility
- A quarry, located next to Brooklyn Landfill.

5.11 Land use and planning

The project area is highly urbanised and includes residential, industrial, commercial, retail and public land uses. Located at the eastern side of the project area is the Port of Melbourne and the associated freight district. Residential areas include Footscray, Seddon, Kingsville and West Footscray. Industrial areas include West Footscray Tottenham, Brooklyn, Sunshine West and Laverton North.

A discussion of key land uses and social infrastructure is presented in Section 5.7 and Section 5.10 above. Zoning maps are provided in Attachment 4. The zoning and overlays relevant to the proposed study area are as follows:

Melbourne City Council

The areas described below are subject to the Melbourne Planning Scheme:

Zoning

- South of Footscray Road is zoned as a Special Use Zone (SUZ1).
- North of Footscray Road and south of Dynon Road there exists both an Industrial 1 Zone (IN1Z) and a Special Use Zone (SUZ1).

Overlays

- The area is subject to the Public Acquisition Overlay (PAO), Land Subject to Inundation Overlay (LSIO) and a Heritage Overlay (HO).
- There are several Heritage Inventory sites in the municipality.

Maribyrnong

The areas described below are subject to the Maribyrnong Planning Scheme:

Zoning

- The western bank of the Maribyrnong River is zoned as a Special Use Zone (SUZ).
- Areas east of Hyde Street and west of the river are variously zoned as an Industrial 1 Zone (IN1Z), Industrial 3 Zone (IN3Z), Business 2 Zone (B2Z), Business 3 Zone (B3Z), Public Use Zone (PUZ), Mixed Use Zone (MUZ), Public Park and Recreation Zone (PPRZ) and Residential 1 Zone (R1Z).
- South of Geelong Road, west of Hyde Street is mainly zoned as a Residential 1 Zone (R1Z). It contains other sections of Mixed Use Zone (MUZ), Public Use Zone (PUZ), Business 1 Zone (B1Z), Priority Development Zone (PDZ), Industrial 3 Zone (I3Z), Business 3 Zone (B3Z) and Public Park and Recreation Zone (PPRZ**)**.
- South of Sunshine Road on the western side of Geelong Road is mainly zoned as Industrial 1 Zone (IN1Z). The area contains Residential 1 Zone (R1Z), Public Park

and Recreation Zone (PPRZ**),** Industrial 3 Zone (IN3Z) and Urban Floodway Zone (UFZ).
- North of Sunshine Road is zoned as a Public Use Zone (PUZ) and Industrial 1 Zone (IN1Z).

Overlays
- The entire municipality is subject to the Development Contributions Plan Overlay (DCPO).
- The area is also subject to the Heritage Overlay (HO), Land Subject to Inundation Overlay (LSIO), Design Development Overlay (DDO), Special Building Overlay (SBO), Environmental Audit Overlay (EAO) and Public Acquisition overlay (PAO).
- The Maribyrnong municipality contains several Heritage Register and Heritage Inventory sites.

Brimbank
The areas described below are subject to the Brimbank Planning Scheme:

Zoning
- The area north of Geelong Road and east of the Western Ring Road is zoned as an Industrial 1 Zone (IN1Z) and Industrial 2 Zone (IN2Z). The area also contains pockets of Public Use Zone (PUZ), Public Park and Recreation Zone (PPRZ) and Urban Floodway Zone (UFZ).

Overlays
- The area is subject to the Heritage Overlay (HO), Special Building Overlay (SBO) and Land Subject to Inundation Overlay (LSIO).

6. POTENTIAL IMPACTS OF THE DECLARED PROJECT ON THE ENVIRONMENT

A preliminary evaluation of potential impacts of the project has been undertaken based on available information. The purpose of the preliminary evaluation is to assist the Minister for Planning to decide on the required assessment process (either Comprehensive Impact Statement or Impact Management Plan) and the nature and extent of investigations to be undertaken for the project as part of the statutory approvals process.

Potential project impacts on the environment were identified through a workshop attended by internal project specialists engaged by LMA with expertise in:

- air quality
- noise and vibration
- European heritage
- Aboriginal heritage
- visual impact
- social and community
- economics and business
- ecology
- hydrology and water quality
- groundwater
- geotechnical
- transport and traffic
- greenhouse gas
- land use.

Potential impacts of the project on the environment were identified using available information on existing conditions and past experience on similar projects. Potential impacts were then assigned into one of the following three categories:

- Category A: Potential impact requires detailed investigation and assessment as part of the approvals process.
- Category B: Potential impact requires moderate levels of investigation and targeted assessment as part of the approvals process.
- Category C: Potential impact requires minimal attention as part of the approvals process.

As set out in Table 6.1, the category for each potential impact was based on the:

- level of sensitivity
- potential scale and severity of impacts
- capacity for management of potential impacts.

Table 6.1: Impact categories

Category	Level of sensitivity	Potential scale and severity of impacts	Capacity for management of potential impacts
A	High sensitivity, significant assets or values under threat	Medium to high impact	Complex and detailed management measures required
B	Moderate sensitivity, some significant assets or values may be affected	Medium to high impact	Standard management measures are available that can be adopted with some tailoring
C	Significant assets or values absent or probably avoidable	Low impact	Standard management measures are available

If for a potential impact, the level of sensitivity is considered to be A, and the potential scale of severity and capacity for management are considered to be B, the impact category A would be assigned. The process of assigning categories was undertaken in small groups, with the results presented to the entire workshop. As these initial assessments were made using preliminary information a precautionary approach was adopted, with a worst case scenario being assumed. For the purposes of the assessment it was also assumed that standard mitigations would be adopted. Table 6.2 records the findings of the preliminary assessment of potential impacts for each field of investigation in accordance with the methodology defined above.

Table 6.2: Initial list of potential impacts, preliminary categories and comments

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Air quality						
Construction dust levels could potentially cause nuisance.	Residential amenity		X		C	Construction dust is expected to be a relatively low impact and would be controlled with standard management measures through an Environmental Management Plan (EMP).
Ground level concentrations of pollutants (eg PM_{10},) emitted from tunnel ventilation structure(s) could potentially exceed intervention levels.	Public health	X		X	A	Air emissions from vehicles using the tunnel component of WestLink (emitted via tunnel ventilation structures) are likely to be of concern to some in the community. Experience from tunnel ventilation structures elsewhere around Melbourne in projects such as CityLink and EastLink demonstrates that EPA air quality standards can be comfortably met. Nevertheless, investigations are proposed to establish that air quality performance requirements would be met for WestLink.
Ground level concentrations of pollutants (eg PM_{10},) emitted from vehicles using WestLink could potentially exceed intervention levels.	Public health			X	C	Air emissions from vehicles using the surface road component of WestLink are not expected to significantly add to the diffuse emissions from the road network as a whole. Air emissions from the Australian vehicle fleet are continually improving with the introduction of new vehicles manufactured to comply with more stringent emission standards. Also, residents in the inner west may experience improved air quality due to the potential removal of heavy vehicles from local streets.
Noise and Vibration						
Construction noise could potentially cause disturbance.	Residential amenity		X		B	The extent of construction noise impacts will depend on the specific construction techniques used. Construction noise would be temporary and is expected to be a relatively low impact in sensitive areas and would be controlled with standard management measures through an EMP.

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Vibration during tunnel construction potentially causes damage to property.	Property assets		X		A	Although likely to be a sensitive issue for some in the community, construction vibration would be controlled in accordance with relevant Australian Standards using standard management measures through an EMP. In addition, existing property condition surveys would be carried out on assets throughout the corridor above the tunnel, prior to the commencement of construction activity. This survey would provide a process for identifying any potential construction impacts to existing properties.
Potential disturbance to the community due to noise from vehicles using the WestLink above surface roads (eg West Footscray/Sunshine West).	Residential amenity			X	B	There is likely to be significant community sensitivity to a potential increase in noise in residential areas that currently have relatively low background noise. Where noise levels are predicted to increase due to WestLink, noise would be attenuated in accordance with the VicRoads Noise Attenuation Policy. Also, residents in some areas of the inner west may experience a decrease in noise from vehicles due to the potential removal of heavy vehicles from local streets. In recognition of noise from existing and proposed rail operations in the corridor between West Footscray and Sunshine West, cumulative impacts of noise from rail and road projects in the same general area would be evaluated as part of the WestLink project.
Potential disturbance to the community due to noise from operating ventilation structures	Residential amenity			X	B	The ventilation systems required to manage in tunnel air quality are a noise source which has the potential to cause impacts on the community. An assessment will be undertaken to evaluate compliance with SEPP N-1.
Vibration due to vehicles using WestLink tunnel potentially causes damage to property.	Property assets			X	B	By the adoption of appropriate engineering standards and construction practices for road tunnels, it is proposed to demonstrate that vibration from heavy vehicles using the tunnel would not cause property impacts. Experience from the CityLink and EastLink tunnels and others elsewhere would be used to inform the WestLink design.

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Vibration due to vehicles using WestLink tunnel potentially causes disturbance of the community.	Residential amenity			X	B	By the adoption of appropriate engineering standards and construction practices for road tunnels it is proposed to demonstrate that vibration from heavy vehicles using the tunnel would not cause disturbance in residential areas. Experience from the CityLink and EastLink tunnels and others elsewhere would be used to inform the WestLink design.
European Heritage						
Potential impacts on the Victorian Heritage registered Saltwater River Crossing Site and Footscray Wharves Precinct (west bank of Maribyrnong River).	European heritage sites and values	X	X		A	A number of European cultural heritage features exist within the study area. In particular, the precinct along the western bank of the Maribyrnong River between Hopkins Street and Napier Street is recognised in the Victorian Heritage Register and in the Maribyrnong Planning Scheme. As part of the design development and options analysis processes for the project, potential impacts on European sites and values are to be minimised where practicable. Where avoidance of heritage areas is not possible, the significance of these effects would be evaluated. The project would be developed by considering design parameters and construction techniques that are sympathetic to the heritage values. This would be done in consultation with Heritage Victoria and /or the local council.
Potential impacts on Heritage Overlay places on the south side of Sunshine Road (woolstores and other industrial heritage sites).	European heritage sites and values	X	X		B	A number of sites with heritage values exist along the south side of Sunshine Road. Where avoidance of these sites is not possible, the significance of these effects would be evaluated. The project would be developed by considering design parameters and construction techniques that are sympathetic to the heritage values. This would be done in consultation with Heritage Victoria and /or the local council.

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Potential impacts on other individual Heritage Inventory sites, Heritage Overlay places and Victorian Heritage registered places across the study area.	European heritage sites and values	X	X		B	Where avoidance of heritage areas is not possible, the significance of these effects would be evaluated. The project would be developed by considering design parameters and construction techniques that are sympathetic to the heritage values. This would be done in consultation with Heritage Victoria and /or the local council.
Potential for impacts on undocumented sites of European heritage significance.	European heritage sites and values		X		B	Further investigations are proposed with regard to European heritage to identify any undocumented heritage sites that could potentially be impacted by the works.
Aboriginal Heritage						
Potential impacts on Aboriginal cultural heritage values at crossings of Kororoit Creek and Stony Creek (i.e. within 200m of waterways)	Aboriginal cultural heritage sites and values	X	X		C	The study area is highly disturbed and developed and areas of Aboriginal cultural heritage sensitivity are expected to be confined to a small number of isolated locations. In particular Aboriginal heritage sites are known to exist in some sections of the Kororoit Creek. As part of the design development process it is proposed to adopt design measures and construction techniques to minimise the footprint of the road and disturbance of the creek. Field investigations will be undertaken at key risk locations to enable preparation of a Cultural Heritage Management Plan (CHMP) under the *Aboriginal Heritage Act 2006* in consultation with Aboriginal Affairs Victoria
Potential impacts on Aboriginal cultural heritage values due to works at Maribyrnong River.	Aboriginal cultural heritage sites and values	X	X		C	The banks of the Maribyrnong River are highly disturbed by previous development and land use. No Aboriginal heritage sites are recorded in the area likely to be affected by construction of the tunnel below the river bed. Nevertheless, field investigations will be undertaken to enable preparation of a Cultural Heritage Management Plan (CHMP) under the *Aboriginal Heritage Act 2006* in consultation with Aboriginal Affairs Victoria.

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Landscape and Visual						
Potential visual impacts of elevated roadways/ interchanges at sensitive receptors (eg West Footscray/Sunshine West)	Landscape values and visual amenity	X		X	A	WestLink is proposed within a highly developed part of Melbourne that includes residential, commercial and industrial land uses. Road infrastructure is relatively large scale and therefore can be prominent in a confined urban landscape. Particular sensitivity is expected in residential areas in the vicinity of any elevated structures. As part of the design development process it is proposed to explore design options that minimise visual impacts at sensitive receptors. Design solutions may include adoption of urban design measures to manage the potential effects of the project on local landscapes.
Potential visual impacts of surface roadways and interchanges at sensitive receptors	Landscape values and visual amenity	X		X	B	Surface roadways and interchanges could potentially have a moderate effect on visual amenity at sensitive receptors. These potential impacts would be assessed and urban design measures would be adopted as appropriate to address any significant effects on local landscapes.
Potential visual impacts of noise barriers at sensitive receptors	Landscape values and visual amenity	X		X	B	Noise barriers could potentially have a moderate effect on visual amenity at sensitive receptors. These potential impacts would be assessed and urban design measures would be adopted as appropriate to address any significant effects on local landscapes.
Potential visual impacts of portals at sensitive receptors	Landscape values and visual amenity	X		X	A	Depending on the design and location, the WestLink tunnel portals could have a significant impact on nearby sensitive receptors. Opportunities exist to adopt urban design measures that would manage the potential effects of the portals on local landscapes. Examples such as the EastLink and CityLink tunnel portals demonstrate how urban design can be used to create a high quality design.

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Potential visual impacts of tunnel ventilation structure(s) at sensitive receptors	Landscape values and visual amenity	X		X	A	Depending on their design and location, the WestLink tunnel ventilation structures could have a significant impact on nearby sensitive receptors. Opportunities exist to adopt urban design measures that would manage the potential effects of the project on local landscapes. The tunnel ventilation structures for EastLink and CityLink provide examples of how a high quality design can be created.
Potential visual impacts on landscape at Maribyrnong River (residential, open space, arts precinct)	Landscape values and visual amenity	X		X	B	The western bank of the Maribyrnong River has significant heritage and landscape values. The outlook from the western bank does include views along the river and toward the city, and also into the port precinct and its associated container storage sites. Opportunities exist to adopt urban design measures that would manage the potential effects of the project on local landscapes.
Social and Community						
Potential loss of public open space	Public open space and recreation opportunities	X	X		B	A number of parks and public open spaces exist within the study area. For example, the drainage easement that extends from the Kororoit Creek through to the Western Ring Road, south of the residential areas of Sunshine West. As part of the design development process, loss of parks and open spaces is to be avoided where practicable. If loss to public space is unavoidable, opportunities for replacement of public areas would be investigated.
Potential loss of community facilities	Community facilities	X	X		C	A wide range of community facilities are located within the study area including schools, places of worship and recreation facilities. It is expected that as part of the design development process, loss of significant community facilities would be avoided. If loss of community facilities does occur, opportunities for replacement of facilities would be investigated.

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Potential severance of communities	Community cohesion	X		X	A	Initial consultations identified that communities within the study area are concerned about the potential impacts of the project on the general community including access to services and general mobility. It is proposed to investigate this issue in detail through the Social Impact Assessment.
Potential severance of pedestrian or bike paths	Community access and mobility	X	X		B	A number of pedestrian and bike paths exist in the WestLink project area. Any existing pedestrian or bike paths that are severed would be reinstated in a suitable location. There may be opportunities as part of the project to add to the bike path network.
Potential displacement of residents	Community cohesion	X	X		A	WestLink may require acquisition of some private properties and therefore potentially cause displacement of residents. The route options analysis process will seek to minimise potential impacts on residential properties.
Potential disruption of existing movement patterns	Community access and mobility	X		X	B	Depending on the final route and design of WestLink, existing road networks may need to be modified. It is proposed to investigate this issue in detail through the Social Impact Assessment.
Potential impacts on road network function as a result of construction activities	Community access and mobility		X		B	Construction works for major transport projects often cause temporary disruption of road network function in the vicinity of the works. For WestLink, these issues would be controlled with standard traffic management measures.
Potential impacts on public transport services as a result of construction activities.	Community access and mobility		X		C	Construction works are not expected to cause significant impacts on public transport services. Any impacts would be temporary in nature and would be managed through a Traffic Management Plan.
Economics and Business						

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Businesses potentially lose existing access and/or parking (eg Tottenham) permanently	Business viability and employment	X	X		B	The study area contains a wide range of industries and commercial businesses including a number of retail precincts. Potential effects on retail precincts are expected to be limited. Where these impacts are unavoidable, the proposal would be developed by considering design parameters and selective construction techniques which would be sympathetic to the needs of the business or precinct.
Displacement of industrial/commercial buildings potentially causes loss of jobs	Business viability and employment	X	X		B	Whilst the project has the potential to facilitate urban renewal, it may also potentially result in the partial or complete acquisition of businesses. A key consideration is the time needed for affected businesses to relocate successfully. Businesses in the vicinity of portal locations and in the western portion of the study area are likely to be affected. Consideration of the potential impacts on businesses will be a key aspect of the options analysis.
Businesses potentially lose existing access and/or parking during construction temporarily	Business viability and employment		X		C	During construction there may potentially be temporary impacts on a range of businesses between West Footscray and the Western Ring Road and to the businesses on private or long term leased Government land on the east side of the Maribyrnong River . These potential impacts may include temporary effects on access and parking. It is planned to identify where instances of these impacts may occur and put in place appropriate mitigation measures where required.
Changed traffic flows potentially affect business visibility/patronage	Business viability and employment			X	B	The study area contains a number of retail precincts and the project could possibly impact on passing trade inquiries. This aspect will require consideration during options analysis.
Ecology						

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Potential removal of native vegetation (eg plains grassland) including large trees	Listed vegetation communities	X	X		A	EPBC and FFG-listed grasslands exist adjacent to the Western Ring Road within and in the vicinity of the Derrimut Grasslands Nature Conservation Reserve. It is proposed to develop the WestLink design minimising the impacts on the grasslands to the extent practicable. Where impacts to the Derrimut Grasslands are unavoidable, potential impacts on listed species will need to be identified and assessed and may require the development of conservation management plans.
Potential impacts on Commonwealth or State-listed flora and fauna at Derrimut Grasslands (eg Striped Legless Lizard, Golden Sun Moth).	Listed species	X	X		A	There is potential for WestLink to encroach into the edge of the Derrimut Grasslands Nature Conservation Reserve at the western end of the project area. In addition to the grasslands being an endangered vegetation community, they also provide habitat for the listed species, Striped Legless Lizard, Golden Sun Moth and the Spiny Rice Flower. It is proposed to develop the WestLink design minimising the impacts on the grasslands to the extent practicable. Where impacts to the Derrimut Grasslands are unavoidable, potential impacts on listed species will need to be identified and assessed and may require the development of conservation management plans (GHD, 2010).
Potential impacts on Commonwealth or State-listed flora and fauna at Stony Creek or Kororoit Creek (eg Growling Grass Frog)	Listed species	X	X		B	Stony Creek and Kororoit Creek allow fish passage during periods of high flow and EPBC-listed and FFG-listed aquatic fauna species may occur in or occasionally move along these waterways. Potential impacts on waterways would be minimised through adoption of a design that does not incur into the waterway and minimises incursion onto the creek bank. Adoption of standard management measures through an EMP will manage water quality aspects during construction.

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Potential impacts on Commonwealth or State-listed flora in the Sunshine rail corridor.	Listed species	X	X		C	Based on recent surveys, the EPBC-listed orchid (Diuris), known to exist near Sunshine Station in the Sunshine rail corridor is considered unlikely to occur in the WestLink project area.
Potential fragmentation/reduced connectivity of native vegetation and/or fauna habitat	Native species	X	X		C	Potential areas of sensitivity are confined to a small number of isolated locations such as the northern edge of the Derrimut Grasslands and the crossing locations at Kororoit Creek, Stony Creek and the Maribyrnong River. As the project area is otherwise highly disturbed and developed, it is not envisaged that it would contribute significantly to these issues.
Potential loss of creek-side vegetation/reduction of the ecological values of waterways	Native species	X	X		C	Stony Creek and Kororoit Creek are disturbed waterways where they pass through the project area. Nevertheless these creeks contain ecological values worthy of protection. It is proposed to design waterway crossings to minimise impacts on waterway vegetation.
Potential impacts on Commonwealth or State-listed flora and fauna at Maribyrnong River (eg Australian Grayling) during tunnel construction.	Listed species		X		B	The Australian Grayling is known from the Maribyrnong River. As works in the river for tunnel construction could potentially affect the Australian Grayling, particular management measures (and construction techniques) would be put in place to avoid/reduce impacts on this listed species. These include: maintaining free passage between upstream and downstream habitats during construction to ensure free passage for migratory aquatic species, restricting instream construction likely to significantly reduce free passage between upstream and downstream habitats to periods not used by threatened species for significant migration, appropriate sediment and erosion control measures to protect the aquatic habitats and adjoining areas supporting native vegetation and water quality monitoring to detect water quality impacts.

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Potential introduction of/accelerated spread of environmental weeds or disease organisms (e.g., *Phytophthora, Batrachochytrium*) during construction.	Remnant native vegetation		X		C	These matters would be controlled with standard management measures through an EMP.
Hydrology and Water Quality						
Design potentially changes floodplain function and potentially causes flooding of private property	Property assets	X		X	B	The project area includes locations that are subject to periodic inundation. As the project design could have potential effects on drainage and floodplain function, it is planned to investigate these issues as part of the design development process to ensure that designs do not have implications for the flooding of private property.
Design potentially changes hydraulic capacity at crossings and potentially causes flooding of property	Property assets	X		X	B	It is planned to investigate these issues as part of the design development process to ensure that designs do not have implications for the flooding of private property.
Design of eastern portal potentially changes upstream flood levels and potentially causes flooding of property	Property assets	X		X	B	It is planned to investigate these issues as part of the design development process to ensure that designs do not have implications for the flooding of private property.
Design potentially does not allow for sea level rise and potentially causes flooding of property	Property assets	X		X	B	It is planned to obtain specialist input on climate change adaption to enable these considerations to be fed into the design development process.
Construction activities potentially damage Council or City West Water sewerage and drainage assets	Utility assets		X		C	A number of significant sewage and water assets are located in the WestLink project area. In consultation with the service owners, it is expected that any potential effects on existing sewage and water assets can be managed by avoidance and reinstatement where necessary.

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Potential effects on water quality in Maribyrnong River due to sediment inputs during construction	Water quality		X		C	Potential construction water quality issues are considered to be of a relatively low impact in sensitive areas and would be controlled with standard management measures through an EMP.
Potential effects on water quality in Kororoit Creek and Stony Creek due to sediment inputs during construction	Water quality		X		C	Potential construction water quality issues are considered to be of a relatively low impact in sensitive areas and would be controlled with standard management measures through an EMP.
Potential increased stormwater pollution into waterways due to runoff from the constructed road surface	Water quality	X		X	C	These matters are routinely considered and accommodated in the design process.
Groundwater						
Tunnel construction potentially causes migration of existing polluted groundwater potentially reducing the quality of groundwater elsewhere	Groundwater quality		X	X	B	Investigations will be undertaken to understand the hydrogeology in the vicinity of the proposed tunnel to enable evaluation and management of any issues associated with groundwater migration.
Groundwater drawdown potentially causes property settlement/damage	Property assets		X		B	A detailed investigation of the groundwater in the vicinity of the proposed tunnel will be undertaken to ensure such impacts are avoided.
Management of extracted groundwater during construction potentially causes pollution of aquifers, land or waterways.	Water quality		X		C	Management of extracted groundwater would be controlled with standard management measures through an EMP.
Tunnel potentially causes changes to groundwater movement patterns reducing availability of groundwater to existing users	Commercial uses of groundwater			X	B	Due to the quality of groundwater a small number of groundwater users are expected to be located in the vicinity of the proposed WestLink tunnel. Investigations will be undertaken to understand the hydrogeology in the vicinity of the proposed tunnel to enable evaluation and management of any impacts on groundwater users associated with potential changes in groundwater movement patterns.

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Management of extracted groundwater during tunnel operation potentially causes pollution of aquifers, land or waterways.	Water quality			X	C	There is likely to be the ongoing need to dispose of intercepted groundwater as part of WestLink tunnel operations. Once the quality of the groundwater is known, treatment can be applied to ensure that pollution does not occur as a result of disposal.
Transport and Traffic						
WestLink potentially conflicts with other transport projects	Community access and mobility	X		X	C	The primary purpose of WestLink is to improve transport mobility in western Melbourne. WestLink is part of the VTP and is being planned in consultation with other government agencies and councils to ensure that compatibility with other transport projects.
WestLink potentially impacts public transport facilities or services	Community access and mobility	X		X	C	WestLink is part of the VTP and is being planned in consultation with other government agencies and councils to ensure compatibility with other transport projects.
Potential traffic impacts due to the need to transport large quantities of spoil from tunnel construction	Residential amenity		X		B	This is a common scenario for the construction of major transport projects with the potential effects able to be minimised through measures specified in traffic management plans
Potential impacts on road network function as a result of construction activities	Community access and mobility		X		B	This is a common scenario for the construction of major transport projects with the potential effects able to be minimised through measures specified in traffic management plans.
Potential impacts on public transport services as a result of construction activities	Community access and mobility		X		C	The potential for temporary disruption to the transport network is a common scenario during the construction of major transport projects. These impacts are able to be minimised through measures normally adopted as part of the traffic management plans.
Potential reduction in road safety following project construction	Road safety	X		X	C	Potential safety impacts are considered to be relatively low as road safety assessments are a standard part of the design process.
Potential reduction in mobility due to changes in road network following project construction	Community access and mobility	X		X	B	The key mobility and movement issues will be considered as part of the social impact assessment. As part of the design development process, mitigation measures to minimise these impacts will be considered.

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Project potentially causes new areas of congestion/major bottlenecks	Community access and mobility	X		X	B	Strategic modifications to the surrounding road network may potentially be needed to ensure that these issues are managed. Transport modelling and traffic analysis will be used to predict the potential changes in traffic flows due to WestLink.
Greenhouse Gas						
Greenhouse gas emissions during construction potentially contribute significantly to overall greenhouse gas emissions from Victoria	Climate		X		C	The quantity of greenhouse gases arising from the construction of WestLink is considered to be minor within the context of overall emissions from Victoria and Australia as a whole. Additionally, efficient construction methods are routinely specified as standard management measures through an EMP.
WestLink potentially increases greenhouse gas emissions from vehicles compared to the no project case	Climate			X	B	It is planned to estimate the greenhouse gas emissions from use of the road network, with and without WestLink. The project has the potential for congestion relief which may reduce greenhouse gas emissions by making transport movements more efficient.
Greenhouse gas emissions from WestLink tunnel lighting, emissions extraction and groundwater pumping contribute to overall greenhouse gas emissions from Victoria	Climate	X		X	C	The WestLink tunnel will require energy for operations and management. Design principles regarding energy efficiency are to be incorporated into the design development process.
Contaminated Land						
Management of contaminated land during construction potentially causes impacts on waterways/ecology	Water quality		X		B	There is potential for contaminated land to be present in areas proposed for the construction of WestLink. In particular, a number of current and former landfills exist in and around Brooklyn, within the project area. Management of contaminated soil during construction is routinely controlled with standard management measures through an EMP.

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Management of contaminated land during construction potentially causes public health problems	Public health		X		C	Management of contaminated soil during construction is routinely controlled with standard management measures through an EMP.
Disturbance of contaminated land during construction potentially causes contamination to be spread	Land		X		C	Management of contaminated soil during construction is routinely controlled with standard management measures through an EMP.
Acid generation and uncontrolled discharge from acid sulphate soils potentially causes pollution of land/waterways	Water quality		X		C	Management of contaminated soil during construction is routinely controlled with standard management measures through an EMP.
Odour from the excavation of contaminated materials from tunnel potentially causes nuisance	Residential amenity		X		C	A large amount of spoil would potentially be excavated for construction of the tunnel. Management of any odours from excavation of contaminated soil would be controlled with standard management measures through an EMP.
Land Use Planning						

	Relevant assets values and uses requiring protection	Potential to avoid or minimise impact during design phase	Project phase impact occurs		Preliminary Category	Comment
			Construction	Operations		
Incompatibility of project with State and local planning (eg Joseph's Road precinct)	Coherent urban form	X		X	B	Land uses in the eastern portion of the study area are under review. In particular, development (and potential extension) of the Footscray Central Activities District, development at the E-Gate site, North Dynon precinct, South Dynon (former fruit and flower market sites) precinct, master planning and development of the Joseph Road area are driving land use change. Whilst there is no apparent conflict between WestLink and these land use changes, it is necessary to ensure that WestLink supports and assists the proposed transition and does not preclude future land uses. As there is no Public Acquisition Overlay for WestLink, planning scheme amendments will be required to facilitate the potential development of the project.

7. APPLICABLE APPROVALS

The two primary assessments and approvals required for the Project under Victorian legislation are under the *Major Transport Projects Facilitation Act 2009* (MTPF Act) and the *Aboriginal Heritage Act 2006.*

The project has been declared under the MTPF Act. The MTPF Act provides an assessment and approvals process for declared major transport projects that results in one approval decision made by the Minister for Planning, rather than multiple approval decisions by multiple authorities. It establishes an open and transparent process with community consultation that provides the opportunity for interested parties to be heard.

The statutory approvals that are able to be replaced by decisions under the MTPF Act are listed in Schedule 1 of the Act. In the case of WestLink, the decision under the MTPF Act would grant approvals under the relevant sections of the following Acts:

- *Environment Protection Act 1970*
- *Flora and Fauna Guarantee Act 1988*
- *Heritage Act 1995*
- *Planning and Environment Act 1987*
- *Road Management Act 2004*
- *Water Act 1989*
- *Wildlife Act 1975.*

The major steps in the approvals process for the WestLink project under the MTPF Act are:

1. Project declared as State significant (this has occurred).
2. Preparation of Project Proposal by LMA).
3. Determination of appropriate impact assessment pathway (either a Comprehensive Impact Statement (CIS) or Impact Management Plan (IMP)) by Minister for Planning. LMA expects that the Minister will determine that a CIS is required for the Project given the requirements of Section 20(3) of the MTPF Act.
4. Scoping Directions issued by Minister for Planning.
5. Preparation and submission of CIS in accordance with the Scoping Directions.
6. Determination by Minister for Planning as to whether the CIS can be released for public exhibition.
7. Possible public exhibition of CIS and invitation for public submissions (and option for an Assessment Committee to recommend a review of the CIS).
8. Possible preliminary hearings for submitters and preparation of CIS issues report by Assessment Committee.
9. Preparation and submission of CIS by Proponent (including possible revision to original CIS if exhibited).
10. Formal public hearing and Assessment Committee recommendation to Minister for Planning.
11. Advice provided to Minister for Planning by EPA (where a Works Approval is required for the project under the *Environment Protection Act* 1970).
12. Approval decision issued by the Minister for Planning.

The MTPF Act does not replace the approval process under the *Aboriginal Heritage Act 2006*. In addition to the State approvals, the project requires approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

An EPBC Referral for the project was submitted to the Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA) on 19 April 2010 for a decision on whether the project would constitute a controlled action and if so, the proposed method of assessment. On 20 May 2010, DEWHA advised that WestLink would require approval under the EPBC Act because of the potentially significant impacts on listed threatened species and communities.

Additionally, the Transport Integration Bill sets out an overarching policy framework for transport legislation which underpins policy direction and projects in the VTP. It establishes a new framework for the provision of an integrated and sustainable transport system in Victoria. It does this by setting out a contemporary policy framework in law which includes;

- a vision statement
- transport system objectives
- decision making principles.

It is noted that a PAO already exists for land needed for the widening of Dempster Street, Paramount Road and Tottenham Parade. Whilst these upgrades form part of WestLink, the PAO was put in place in the early 1970s.

Table 7.1 nominates approvals potentially applicable to WestLink which can be granted under the MTPF Act.

Table 7.1: Approvals which can be granted under the *Major Transport Projects Facilitation Act 2009*

Act	Purpose of Act	Applicability to WestLink
Major Transport Projects Facilitation Act 2009	To facilitate the development of major transport projects.	WestLink has been declared a State significant project under the Act.
Environment Protection Act 1970	To create a legislative framework for the protection of the environment in Victoria having regard to the principles of environment protection.	Works Approval required under Section 19B(7) of the Act for a road tunnel ventilation system as specified in the *Environment Protection (Scheduled Premises and Exemptions Regulations) 2007.*
Flora and Fauna Guarantee Act 1988	To establish a legal and administrative structure to enable and promote the conservation of Victoria's native flora and fauna and to provide for a choice of procedures which can be used for the conservation, management or control of flora and fauna and the management of potentially threatening processes.	Under Section 40, a permit may be required for a use specified in an interim conservation order, however no such orders currently exist so this is an unlikely requirement. Under Section 53, a licence may be required to take fish which are members of a taxon or community listed under the Act.
Heritage Act 1995	To provide for the protection and conservation of places and objects of cultural heritage significance and the registration of such places and objects; and To establish a Heritage Council; and To establish a Victorian Heritage Register. To establish a Victorian Heritage Inventory	Under section 74, a permit may be required for alteration or removal of places on the Victorian Heritage Register. Under section 113, a permit may be required to disturb an historic shipwreck. However, this is an unlikely requirement. Under section 129, consent may be required to disturb an historical archaeological relic.
Planning and	To establish a framework for	A Planning Scheme Amendment

Act	Purpose of Act	Applicability to WestLink
Environment Act 1987	planning the use, development and protection of land in Victoria in the present and long-term interests of all Victorians.	would be required to introduce a PAO to reserve land for the project. A PAO currently exists for land needed for the widening of Dempster Street, Paramount Road and Tottenham Parade. Planning Permit(s) or Planning Scheme Amendment(s) required for land affected by the project where covered by some overlays eg. A permit is required for buildings and works, including road works, in a Floodway Overlay, Land Subject to Inundation Overlay or Special Building Overlay and a permit is required to demolish or remove a building or construct a building or carry out works in a Heritage Overlay. A Planning Permit or Planning Scheme Amendment required for removal of native vegetation associated with the project (as per clause 52.17 of the *Planning and Environment Act 1987*) and for Net Gain offsets for the vegetation to be removed.
Road Management Act 2004	To reform the law relating to road management in Victoria and to make related amendments to certain Acts.	Consent required for access to a freeway (under clause 1 of Schedule 2). Decision may be required for access to a controlled access road (under clause 2 of Schedule 2). Consent required for works on a road (under clause 16 of Schedule 7).
Water Act 1989	The Act has the following purposes, amongst others: a. To re-state, with amendments, the law relating to water in Victoria. b. To provide for the integrated management of all elements of the terrestrial phase of the water cycle. c. To promote the orderly, equitable and efficient use of water resources. d. To make sure that water resources are conserved and properly managed for	Under Section 51, a licence may be required to take and use water from a waterway and/or groundwater. Under Section 67, a licence may be required to construct works on a waterway or to construct a groundwater bore.

Act	Purpose of Act	Applicability to WestLink
	sustainable use for the benefit of present and future Victorians.	
Wildlife Act 1975	a. To establish procedures in order to promote: i. The protection and conservation of wildlife. ii. The prevention of taxa of wildlife from becoming extinct. iii. The sustainable use of and access to wildlife. b.To prohibit and regulate the conduct of persons engaged in activities concerning or related to wildlife.	Authority may be required for removal of material from, change water flow into or out of, disturb wildlife in or take or disturb native flora from a State Wildlife Reserve or Nature Reserve (under section 21(1), (2) or (3)). It is noted that the Derrimut Grasslands is a Nature Conservation Reserve. Licence may be required to take or destroy wildlife (any vertebrate fauna other than mankind which is indigenous to any part of Australia) from any land (under Section 22(1)). Authorisation to take or destroy wildlife may be required (under Section 28A).

Table 7.2 outlines approvals potentially applicable to WestLink that require a separate process to that under the MTPF Act.

Table 7.2: Approvals which require separate process to *Major Transport Projects Facilitation Act 2009*

Act	Purpose of Act	Applicability to WestLink
Aboriginal Heritage Act 2006	To provide for the protection of Aboriginal cultural heritage in Victoria.	A Cultural Heritage Management Plan (CHMP) is required if: • All or part of the area for the activity is an area of cultural heritage sensitivity. • All or part of the activity is a high impact activity. CHMPs must be approved by the Registered Aboriginal Party (RAP) for the locality or if no RAP (as is currently the case for the project area), by Aboriginal Affairs Victoria. Activities for the WestLink Project will require preparation of a CHMP as land within 200 metres of a named waterway is an area of cultural heritage sensitivity and road works are a high impact activity. Under Section 75 of the MTPF Act, the project proponent for a declared project must give the Minister for Planning a copy of every CHMP that is approved under the *Aboriginal Heritage Act 2006* for the area in which works are to be carried out for the project.
Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	To provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance.	Approval is required from the Commonwealth Minister for the Environment, Heritage and the Arts for any proposed action that is likely to have a significant impact on a matter of national environmental significance (MNES). If an action may have a significant impact on a MNES, a referral should first be made to the Department of Environment, Water, Heritage and the Arts for a decision on whether the proposal is a controlled action (an action requiring assessment and approval under the EPBC Act).

Act	Purpose of Act	Applicability to WestLink
Flora and Fauna Guarantee Act 1988	Refer to Table 7.1	Under Section 47, a permit or licence may be required for removal of protected flora on public land. However, unlike Sections 40 and 53, Section 47 is not listed as an 'applicable approval' under the MTPF Act and therefore, the Minister for Planning would not be able to issue this approval under the MTPF Act.
Crown Land (Reserves) Act 1978	To provide for the reservation of Crown lands for certain purposes and for the management of such reserved lands and for other purposes.	Section 4 enables the Governor in Council to, by order published in the Government Gazette, to reserve any Crown land required for public purposes.
Environment Protection Act 1970	To create a legislative framework for the protection of the environment in Victoria having regard to the principles of environmental protection.	Any discharge licence (to water or air) would require a separate approval.

8. OUTLINE OF FURTHER STUDIES

To address the key risks outlined in Section 6, assist in the selection of the preferred project and undertake a detailed impact assessment on the preferred project, it is proposed to undertake a comprehensive set of specialist studies. The scope of the specialist studies will reflect nature and extent investigations specified in the Scoping Directions issued by the Minister for Planning.

Specialist studies will be undertaken to assess the project in relation to the project objectives. These studies will also inform the design development process and ensure that the project design responds to identified constraints in order to avoid or minimise potential impacts. Specialists will be involved in developing and agreeing environmental performance parameters with relevant government agencies for their specialist area.

These requirements are common to all specialist assessments and are considered core project processes. Broad scopes outlining key future tasks to be undertaken for each of the specialist studies are presented below. It is envisaged that this preliminary information will assist the Minister for Planning to develop the Scoping Directions.

Strategic Transport Modelling

- Source relevant data including traffic counts, employment and population forecasts, origin-destination information and heavy and light vehicle usage to inform strategic transport modelling.
- Develop the strategic transport model and confirm strategic inputs such as the planned road network and public transport improvements to be included.
- Calibrate and validate the strategic transport model against existing conditions.
- Run the transport model for the base year (2006) and 2021 and 2031 forecast years to predict demand on the transport network with and without WestLink.
- Undertake relevant sensitivity analyses to understand the limitations of modelling results (including an investigation of induced demand).

Traffic Engineering and Transport Planning

- Review previous relevant traffic studies and future traffic demands predicted by transport modelling (including induced demand).
- Identify required upgrades to existing roads and intersections, including road widenings and land acquisition.
- Assess traffic use and the impacts of the project including assessing the potential benefits due to reduced traffic volumes, improved safety conditions and travel time savings.
- Identify mitigation measures which may be required for the surrounding road network as a result of changed conditions resulting from the project.

Geotechnical

- Undertake a review of available geotechnical information for the project area.
- Undertake further targeted geotechnical investigations to enable development of a conceptual geotechnical and hydrogeological model to assist with design development.
- Investigate the potential for acid sulphate soils to be encountered during project construction and propose control measures for acid sulphate soils as required.
- Assess erosion, soil stability and sedimentation hazards associated with construction of the project and any proposed control measures.

Contaminated Land

- Review historic land uses in the project area to identify potential sources and locations of contamination.
- Review available information on existing contamination in the project area.

- Evaluate the risks associated with the potential disturbance of contaminated land for project construction.
- Investigate potential options for management of material excavated for tunnel construction including any potentially contaminated material or potential acid sulphate soils.
- Propose suitable management and mitigation measures to address any significant risks related to contaminated land.

Groundwater

- Review available geological and hydrogeological data, reports and maps;
- Investigate and describe the groundwater flow systems and interactions between aquifers.
- Characterise groundwater chemistry.
- Identify receptors and users of the groundwater system.
- Assess the potential for impacts on beneficial uses of groundwater including any effects on existing groundwater users.
- Assess the potential for property settlement due to changes in the groundwater system resulting from the project.
- Investigate methods to manage any groundwater extracted during the construction or operation of the road tunnel.
- Identify mitigation measures required in the design, construction and operation of the project to minimise risks to groundwater and impacts on existing bores and other beneficial uses.

Surface Water

- Characterise floodplain function and identify areas subject to inundation.
- Characterise the waterways within the project area including stability, stream flow, amenity and water quality.
- Assess the potential impacts of the project on floodplain function and beneficial uses of waterways including any potential consequential effects on property assets.
- Identify mitigation measures required in the design, construction and operation of the project to minimise risks to floodplain function and waterways.

Ecology

- Review previous ecological reports and information from relevant flora and fauna databases to identify ecological features potentially present in the project area.
- Undertake targeted flora and fauna surveys where required in key areas of ecological interest including the Derrimut Grasslands Nature Conservation Reserve and Kororoit Creek, Stony Creek and Maribyrnong River.
- Assess impacts the project may have on ecological communities or species listed under Commonwealth or State legislation.
- Undertake a net gain assessment and identify any offset requirements in accordance with *Victoria's Native Vegetation Management – A Framework for Action.*
- Assess the impact of the project on aquatic species and river health values of the waterways, tributaries, drains, wetland systems or drainage reserves that may be crossed.
- Identify measures to minimise and mitigate disturbance to habitats and species/communities, specifically those with high conservation status.

Economics

- Obtain capital and operating cost estimates for WestLink and develop extrapolation factors for future year economic assessments.
- Establish a benefit/cost analysis model to undertake the economic analyses.
- Calculate the net present value of benefits and benefit/cost ratio for the project.
- Assess the wider economic benefits resulting from the project.

- Determine the direct and indirect economic effects of the construction and operation of WestLink on the economies of Melbourne and Victoria.

Commercial and Business

- Characterise businesses in the project area and the associated contribution to the economies of Melbourne and Victoria.
- Identify and describe businesses potentially affected by WestLink including any businesses that might be permanently displaced and businesses that might be temporarily disrupted by construction activities.
- Assess the effects of potential impacts on businesses on the western Melbourne and Victorian economies.
- Identify mitigation measures which may be considered to mitigate effects on businesses.

Social

- Undertake a policy and context review to inform the social impact assessment.
- Review Council and other existing information to develop a community profile.
- Identify key community services and facilities within the project area.
- Undertake primary social research including surveys, interviews and focus groups with project stakeholders.
- Assess the potential social impacts associated with WestLink, in particular:
    - Severance of communities
    - Displacement of residents
    - Effects on the existing pedestrian and cycling network
    - Disruption of existing movement patterns
- Propose management and mitigation measures where needed to address any significant social impacts.

Land Use Planning

- Review existing land uses across the project area.
- Evaluate the project in relation to relevant planning scheme provisions, policies and strategies.
- Identify opportunities to minimise impacts of the project on the use and development of surrounding land-uses.
- Identify the land requirements for the project and general ownership patterns within the area including freehold, crown and leasehold interests (if practicable).

Aboriginal Cultural Heritage

- Review available information including previous reports and government databases to identify known Aboriginal cultural heritage sites and values.
- Undertake targeted field investigations to characterise Aboriginal cultural heritage sites and values within the project area.
- Consult with relevant Aboriginal groups.
- Assess the potential impacts of WestLink on Aboriginal cultural heritage sites and values in the project area.
- Propose mitigation measures as required to minimise potential impacts on Aboriginal cultural heritage sites and values in the project area.
- Prepare a draft Cultural Heritage Management Plan in accordance with the requirements of the *Aboriginal Heritage Act 2006.*

European Heritage

- Review available information including previous reports, government databases and Council overlays to identify known European heritage sites and values in the project area.
- Undertake targeted field investigations to characterise European heritage sites and values.

- Assess the potential impacts of WestLink on European heritage sites and values; such as:
    - Saltwater River Crossing Site and Footscray Wharves Precinct;
    - Woolstores and industrial heritage sites on the south side of Sunshine Road
- Propose mitigation measures as required to minimise potential impacts on European heritage sites and values.

Visual and Landscape

- Identify and review planning overlays, urban design plans and strategies relevant to the project area.
- Identify sensitive locations with respect to visual impact and any significant landscapes.
- Assess visual impact of the project and develop mitigation measures; in particular for elevated roadways/interchanges, portals and tunnel ventilation structures.
- Develop indicative landscape and urban design treatments for the project.

Noise and Vibration

- Undertake a review of previous noise and vibration studies.
- Identify areas and locations sensitive to noise and vibration.
- Determine background noise and vibration levels.
- Use traffic modelling outputs to predict noise levels in noise sensitive areas with and without WestLink.
- Evaluate the potential impacts of noise from operating ventilation structures in relation to the requirements of SEPP N-1.
- Assess the potential for vibration impacts on property assets.
- Investigate construction noise and vibration impacts and propose measures to minimise these where required.

Air Quality

- Obtain and review existing air quality and meteorological data.
- Determine performance requirements for tunnel ventilation structures linked to relevant legislation and policy.
- Undertake air modelling using AUSPLUME or other suitable model to predict pollutant concentrations related to emissions from the tunnel ventilation structures.
- Assess potential air quality impacts associated with tunnel ventilation structures in relation to design criteria of SEPP Air Quality Management.
- Based on output from the strategic transport modelling, evaluate potential air quality impacts from vehicles as a consequence of WestLink.
- Assess potential air quality impacts from vehicles using WestLink identified hotspots (eg key intersections) in relation to intervention levels of SEPP Air Quality Management.
- Investigate mitigation measures to address significant air quality issues identified through the assessments undertaken.
- Investigate dust issues during construction and recommend dust management measures.

Greenhouse Gas Emissions

- Undertake a greenhouse gas assessment in accordance with relevant standards.
- Identify key greenhouse gas emission sources and estimate the emissions as CO_2 equivalent.
- Based on transport modeling information (including induced demand), investigate changes to greenhouse gas emissions levels with and without WestLink.
- Undertake relevant sensitivity analyses including taking into account the potential for induced demand and identified fuel efficiency scenarios.

9. COMMUNICATIONS AND STAKEHOLDER ENGAGEMENT

9.1 Outline of Consultation

LMA has developed a program of consultation activities across all phases of the planning and consultation study. This program has been designed to inform stakeholders about the progress and findings of the planning study, in order to obtain high quality feedback; and to involve stakeholders by ensuring their feedback is considered during project development.

Consultation activities have been planned to align with these objectives, as outlined in Table 9.1. The consultation program commenced early in the life of the project and will be closely coordinated with project development to ensure the findings from consultation inform project activities. This will allow LMA to derive the greatest value from consultation and to achieve the overall goal of improving project outcomes and balance the economic and environmental impacts of the project with social impacts and potential benefits to community.

Table 9.1: Alignment of consultation objectives and activities

Inform	Consult	Involve
To provide balanced and objective information to facilitate understanding of the problems, alternatives, opportunities and/or solutions.	To obtain feedback on analysis, alternatives and/or decisions.	To work together to ensure that public concerns and aspirations are consistently understood and considered.
Tools and activities		
Direct mail newsletters Interactive website Subscriber e-updates State and local advertising Fact sheets Consultation summaries Info Hub located in Footscray	Public displays Exhibition of findings and reports Community Values Workshops Community surveys Contractor open days Social Impact Assessment	Technical Reference Group Community Reference Group Targeted interviews and small group discussions with stakeholders (including Agencies) Culturally and Linguistically Diverse (CALD) consultation program Youth forum

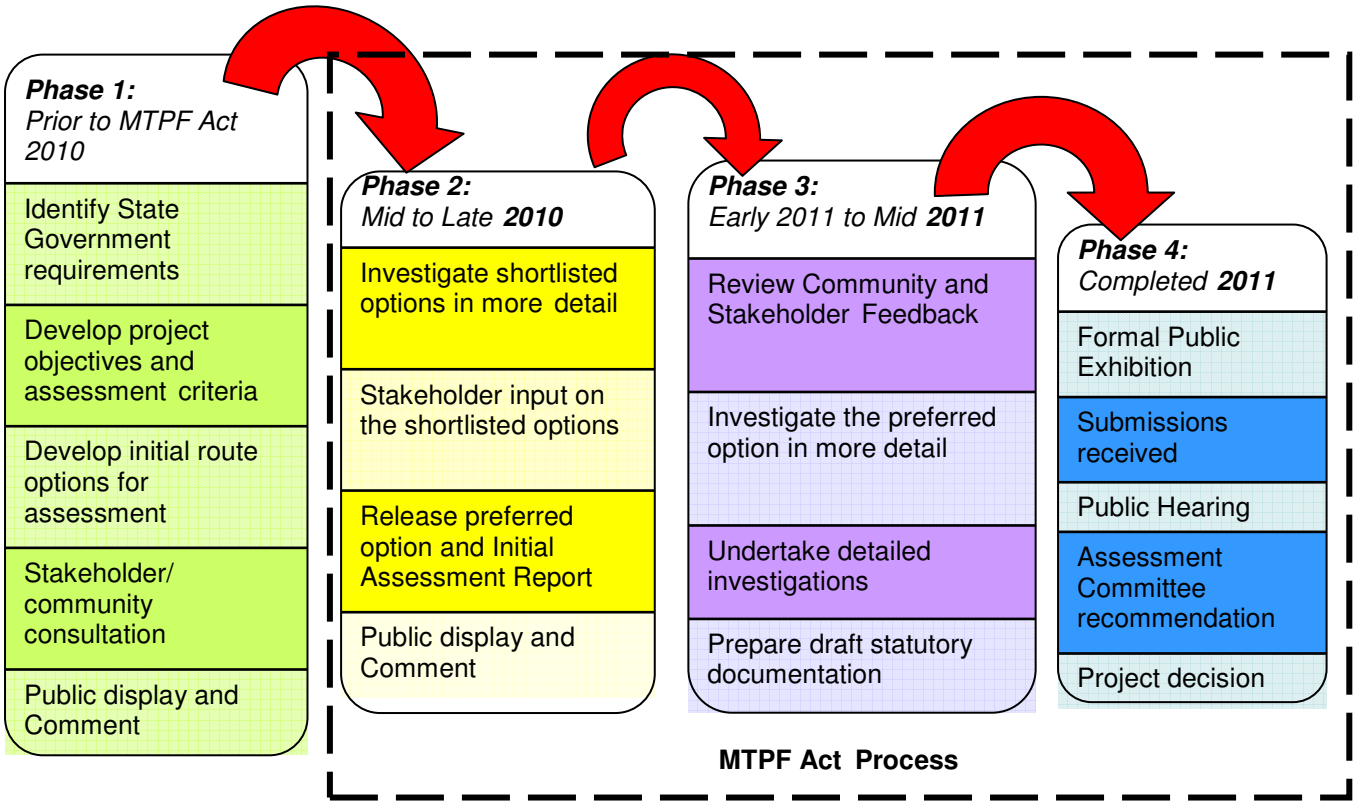
**This spectrum of goals/objectives draws from a broader spectrum developed by the International Association of Public Participation (IAP2).*

The range of consultation tools and activities outlined will be used as appropriate in each phase of the project. The consultation objectives and broad timeframes for each of the phases of the planning and consultation study are:

- Phase 1 (late 2009 to mid 2010): to explain the planning process, obtain stakeholder input on project issues, impacts and alignments and to seek stakeholder feedback on shortlisted project options;
- Phase 2: (mid 2010 to late 2010): to obtain input on the preferred option – the one with the best balance between social, environmental and economic considerations and to consider stakeholder views on the preferred option and any possible refinements within technical and financial constraints of the project;
- Phase 3 (early 2011 to mid 2011): to present and explain the planning study findings, explain the planning process and encourage further involvement in the project.

The Phase 1 consultation is currently underway and precedes commencement of the statutory approvals process. Subsequent phases occur in conjunction with the statutory approvals process. A diagrammatic representation of these phases in included in Figure 4.

Figure 4: Overview of Study Process



Consultation tools and activities include:

- **Newsletters** – will be distributed to individual postal addresses within a defined project area to provide updates on the planning and consultation study and promote consultation opportunities.
- **Website** – information will be updated regularly on the LMA website with hits on the website monitored as one measure of interest in the project.
- **E-updates** – stakeholders are encouraged to register to receive email updates. Information is also be available through LMA and the Victorian Transport Plan Info Hub for those without access to email.
- **Local and state newspapers** - information will be placed in local and state-wide print media as appropriate and as required to promote public displays and public exhibition periods.
- **Public displays** – will be held on designated days in the municipalities of Maribyrnong, Brimbank and Melbourne. These displays will present information appropriate for helping stakeholders to provide informed feedback at the end of each phase of planning and consultation.
- **Fact sheets –** will be published in response to the need to explain aspects of the technical investigations and planning process in a concise and clear format.
- **Consultation reports** – will document the broad findings from consultation activities at appropriate stages through the planning and consultation study and, where relevant, LMA's response to stakeholder feedback. This supports transparency and accountability and builds trust with stakeholders.

- **VTP Info Hub** – located in Footscray, provides a place where people can speak with project representatives and obtain information and submit feedback about WestLink and its planning and consultation activities.
- **Facilitated workshops** (eg Community Values Workshops) – used to obtain information from specific stakeholder groups to inform project decisions.
- **A Community Reference Group (CRG)** - established to provide regular and ongoing contact and opportunities for input into planning activities among industry, interest groups, council and community representatives.
- **A Technical Reference Group (TRG) –** established to provide regular and ongoing feedback from the regulatory agencies during the development of the project.
- **Translation** – a selection of written material will be translated and specific small group workshops will be supported by translators to assist in communicating with community members from culturally and linguistically diverse backgrounds.

In addition, the Social Impact Assessment will include social research, stakeholder and household interviews, community group meetings and a community survey in order to produce data about social factors such as community values and movement patterns to help identify potential impacts and mitigation measures.

9.2 Target Audiences

Consultation activities have been designed to reach a range of stakeholders from the following broad categories:

- State Government agencies
- Local Government – Brimbank, Maribyrnong and Melbourne
- Landowners
- Residents located within the study area and within the west of Melbourne
- Business and industry peak bodies
- Freight, transport and public transport interest groups
- Minority and vulnerable groups including people from culturally and linguistically diverse communities
- Community, environmental and recreational interest groups
- Social service providers.

9.3 Supporting Research

The consultation program has been informed by the findings of research commissioned by LMA in the initiation phase of the project. This research conducted in the direct project area and within the broader west and north-west geographical area found that it was equally important to residents in the west to have their say as to be kept informed about the project. Respondents indicated a preference for being kept informed via newsletters/brochures delivered to postal addresses, email updates and updates in local newspapers. Further, respondents nominated preferred ways to provide feedback as being lodging opinion via email, completing surveys and attending public forums.

LMA has also drawn on advice provided by specialist consultants, Cultural Perspectives, in developing a strategy to engage members of culturally and linguistically diverse (CALD) communities in the west. Demographic data from the 2006 and 2001 Census and the Department of Immigration and Citizenship settlement database identified 15 language groups that should be targeted in the municipal areas of Brimbank, City of Melbourne and Maribyrnong. The fifteen major language groups are: Vietnamese, Italian, Macedonian, Greek, Croatian, Arabic (Lebanese), Spanish, Turkish, Serbian, Bosnian, Chinese (Hakka), Maltese, Chinese (Cantonese), Dinka (Sudanese) and Somali. Chinese (Mandarin speakers), Burmese Karen, Filipino and Indian (Hindi and Punjabi) speakers are also identified as important CALD audiences. LMA will seek to engage community members from CALD backgrounds in their own language as well as through their existing and preferring communication channels and meeting places.

9.4 Early Consultation Overview

Since the planning and consultation study commenced in late-2009, LMA has conducted a number of consultation activities during the initiation phase including:

Initiation phase

Inform

- Public information displays held in March and April 2009 in Brimbank and Maribyrnong providing general information about WestLink and the VTP
- Project fact sheet delivered via Australia Post to all households in the study area
- Launch of WestLink section of LMA website and posting of project information including vodcasts and translations
- Establishment and opening of the VTP Info Hub in Footscray.

Consult

- Market research survey undertaken with 1,000 households in the west

Involve

- Project briefings and presentations
- Development of a community profile to help inform social research and consultation with CALD communities for future involvement.

Phase 1

Inform

- Information placed in local papers, The Herald Sun and MX to invite applications for community representatives and promote Community Values Workshops
- E-updates sent at key milestones to around 450 parties registered (at end-March)
- First project newsletter prepared for direct mail distribution in late-March.

Consult

- Feedback obtained through visitors to the VTP Info Hub.
- Community survey launched with approximately 300 surveys completed by the end of February.

Involve

- Community Reference Group established with four meetings held to end-April.
- Planning for a series of eight CALD workshops commenced.
- Four Community Values Workshops conducted in February involving over 100 people

There has been a high level of interest in the project at this early stage, indicated by hits on the website, registration for e-updates, attendance at Community Values Workshops and completion of the community survey. These consultation activities are ongoing and the results will continue to be analysed and shared with the community through various means, including consultation reports. Key themes observed to date include concerns around transport and traffic congestion in the west, catering for future population growth in the region, the importance of preserving amenity and lifestyles during planning and construction and the importance of minimising impacts on land particularly residential.

Attachment 1 – Indicative Project Area

Attachment 2 – Important Ecological Features

Attachment 3 – Land use Zoning and Overlays

Attachment 4 – Land Contamination and Water Opportunities and Constraints Map

Attachment 5 – Typical Freeway Cross-section

Attachment 6 – Report for WestLink – Desktop Review – Ecology, 2010, GHD

Attachment 7 – WestLink – European Cultural Heritage – Desktop Review of Statutory and Non-Statutory Listings, March 2010, Lovell Chen